

EXHIBIT

D

FOLDER 3

P+2

# **Nutrient Management Plan Special Conditions for Virginia Pollution Abatement (VPA) and Virginia Pollutant Discharge Elimination System (VPDES) Permits**

April 2006

**The following management practices will be utilized for operations requiring a VPA or VPDES permit and located in eastern Virginia (east of I-95):**

1. Soil samples for sludge application fields will be analyzed at least once every three (3) years for pH, phosphorus, potassium, calcium, and magnesium in order to maximize the efficient utilization of nutrients. A representative soil sample of each field will be comprised of at least 20 cores randomly sampled throughout the field. Soil sampling core depth will be from 0 – 4 inches for land which has not been tilled within the past three years, or 0 – 6 inches for land that has been tilled within the past three years. Soil pH will be maintained at appropriate agronomic levels to promote optimum crop growth and nutrient utilization.
2. Soil test analysis will be performed by one of the laboratories listed below. Soil phosphorus levels must be determined using the Mehlich I or Mehlich III procedure.
  - A&L Agricultural Laboratories
  - Brookside Laboratories
  - Spectrum Analytical Laboratories
  - Virginia Tech Soil Testing Lab
  - Waters Agricultural Laboratories
3. Representative sludge samples will be analyzed at a minimum of once every three years for VPA permits and once per year for VPDES permits for the following: total nitrogen or total Kjeldahl nitrogen, ammonia-nitrogen, total phosphorus, total potassium, and percent moisture. All sludge analyses shall be performed using laboratory methods consistent with Recommended Methods of Manure Analysis, publication A3769, University of Wisconsin, 2003 or other methods approved by the Department of Conservation and Recreation. Sludge analysis results will be used to determine actual sludge rates that do not exceed the nitrogen and phosphorus application rates specified in the nutrient management plan using either the most recent analysis results (not greater than 1 year old) or the facilities average results based on actual analysis.
4. All crops will be planted and harvested in a timely manner using commercially acceptable management practices.
5. Make sludge applications at or near planting or to existing actively growing crops to assure that nutrients are properly utilized. Additional commercial fertilizer applications (especially nitrogen) should be made as a split application separate from the sludge application, either as a sidedress or topdress application.

For permanent hay or pasture, an adequate stand of hay and/or pasture crop species will be established prior to land application of sludge. Commercially acceptable stands of the

listed species will be maintained and other weeds and grasses controlled. All hay crops will be harvested in a timely and regular manner, removed from fields, and utilized for a suitable purpose.

6. Sludge will be applied to application sites in a uniform manner.
7. Do not spread sludge on soils that are saturated, ice or snow covered in order to avoid runoff from application fields. Dry sludge may be applied to frozen ground only under the following conditions:
  - a) Slopes are not greater than 6%;
  - b) A minimum of a 200 foot vegetative or adequate crop residue buffer is maintained between the application area and all surface water courses;
  - c) Only those soils characterized by USDA as "well drained" with good infiltration are used; and
  - d) At least 60% uniform cover by vegetation or crop residue is present.
8. Do not spread sludge within the following setback areas:
  - 100 feet from wells or springs
  - 35 feet from surface waters if the entire setback is a permanent perennial vegetated buffer

OR

100 feet from surface waters if there is not a permanent perennial vegetated buffer of at least 35 feet in width

- 50 feet from sinkholes\*
- 50 feet from limestone rock outcrops
- 25 feet from other rock outcrops
- 10 feet from agricultural drainage ditches (5 feet if injected)
- 200 feet from occupied dwellings (unless waived in writing by the occupant)

\*Waste shall not be applied in areas subject to concentrated flow generated by runoff from storm events such that it would discharge into sinkholes in the area.

11. For odor control and to reduce drift, avoid spreading on windy days.
12. If sludge is stackable and contains less than 40% moisture, storage may be utilized for up to 14 days on sites meeting the following criteria:

The slope is not greater than 7%,  
The site must be at least 100 feet from any surface water, intermittent drainage, wells, sinkholes, rock outcrops and springs.
13. Storage sites used for greater than 14 days must be identified in this plan. These sites which are not covered by a roof must meet the following criteria:
  - a) The sludge can not be stored for greater than 180 days; and
  - b) The waste is covered with a waterproof reinforced tarp (ultraviolet resistant is preferable) or impermeable sheeting of 6 mil thickness or greater; that is anchored against wind on the perimeter and weighted on the top; and

- c) The waste stockpile is protected from storm water running onto or under it.
14. New waste storage facilities shall be designed, constructed and operated in accordance with the USDA-NRCS Field Office Technical Guide and other appropriate NRCS design criteria.
  15. Spreader calibration is extremely critical to ensure proper application rates. Calibration of equipment or verification of actual equipment application rates shall occur at a minimum of once per year.
  16. Nutrient management plans that contain fields in which row crops will be grown, will be revised at least once every three (3) years. Nutrient management plans that contain only hay or pasture fields will be revised at least once every five (5) years. Any such plan revisions will be submitted to DCR for review and approval.
  17. This nutrient management plan must be amended or modified if: animal numbers increase above the level specified in the plan; animal types including intended market weights are changed; additional imported manure, biosolids, or industrial waste that was not identified in the existing plan is applied to fields under the control of the operator; available land area for the utilization of manure decreases below the level necessary to utilize manure in the plan; or manure application fields have Mehlich 1 soil phosphorus levels at or above 55 ppm (110 pounds/acre P) where either cropping systems, rotations, or fields are changed.
  18. Minor plan amendments involving changes to the cropping system, crop rotations, specific application fields, manure analysis results or minor fluctuations in animal market weights or animal numbers (10% or less cumulative increase since this original plan was developed.) may be made to this nutrient management plan by the specific certified nutrient management planner that developed this NMP without the prior approval of DCR. Any such plan amendments must be made prior to subsequent nutrient application to fields impacted by the change. Certified nutrient management planners shall provide a copy of any such plan amendments to DCR within two weeks of the plan modification.
  19. All major plan modifications shall be submitted to DCR for review and approval prior to implementing any changes. Major modifications include but are not limited to: proposed changes to the plan expiration date; increases in animal numbers of greater than 10% or changes in animal types including intended market weight; additional imported manure, biosolids, or industrial wastes not included in the original NMP are to be applied; or available land area for the utilization of manure decreases below the level necessary to utilize manure in the plan due to sale of land, expired lease, etc.
  20. These conditions do not override any local or county ordinances that may be more restrictive.



## CLOSURE OF WASTE STORAGE FACILITIES

When the waste storage facility is no longer needed, the owner or operator shall close the storage facility in a manner that minimizes the need for further maintenance, and controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, the post closure escape of uncontrolled leachate, surface runoff, or waste decomposition products to ground water, surface water or to the atmosphere. At closure, the owner or operator shall remove all liquid waste and animal waste residue from the waste storage facility. All devices used to convey animal waste into the animal waste storage facility shall be removed. Removed waste materials shall either be utilized according to this nutrient management plan or disposed of as solid waste according to the requirements of the Virginia Solid Waste Management Regulations, 9 VAC 20-80-10 et seq.

Once the waste is removed, the owner or operator is required to follow the procedures outlined below to either backfill the facility or convert the facility to a fresh water pond:

- If the facility will be backfilled, clay liners on interior side slopes will be removed using earth moving equipment or destroyed using sub-soiling equipment and any synthetic liners on side slopes will be rolled or folded and placed in the bottom of the structure prior to backfilling. Such liner removal or destruction shall, at a minimum, occur in the area from the top of the structure to a depth of within three feet of the structure bottom or groundwater whichever is greatest in elevation at the time of closure. The storage facility shall be backfilled with clean material. The animal waste storage facility site shall have a final earthen cover that is designed and constructed to: minimize infiltration of rainwater; minimize erosion of the final cover or side slope material; prevent ponding and support a suitable vegetative cover. In order to ensure proper drainage, the final cover shall have a minimum slope of 5%. Following installation, the owner or operator shall maintain the integrity and effectiveness of the final cover, including any repair needed due to settlement, subsidence, erosion or other events and preventing run-on and run-off from eroding or otherwise damaging the final cover.
- If the facility will be converted to a fresh water pond, the structure to be converted shall be reconstructed as necessary to meet the standard specification for ponds (practice #378) as contained in the Natural Resources Conservation Service (NRCS) Field Office Technical Guide and shall include a principle spillway and an emergency spillway if an embankment of three feet or more exists.

The owner or operator shall complete these closure activities within six months after the last date on which animal waste is placed in the waste storage facility unless the nutrient management plan is revised and approved by the Department of Conservation and Recreation (DCR). The owner and operator shall notify the regional office of the Department of Environmental Quality (DEQ) upon completion or grading of the final earthen cover or completion of the converted pond structure.

## Environmental Risk Factors

This nutrient management plan was developed for Omega Protein, Inc. who operates in Northumberland County. All sources of nutrients including commercial fertilizer, animal manures, biosolids, and previous legume crops combined should not exceed those rates specified in this plan.

This site-specific plan is based on the predominant soil types and their associated yield records, crop rotation, soil tests and leaching index found in the field. Credit is given for residual nutrients derived from legumes in previous crops. With implementation of this plan, one will help avoid economic, agronomic, and environmental problems that may be due to soil fertility levels. For individual field recommendations, please refer to the nutrient balance sheets provided.

In order to provide accurate fertilizer recommendations, it is important to take soil samples once every three years. These samples provide valuable information such as soil fertility levels and pH. Based on this information, the soil types and associated productivities, the amount of plant nutrients for a rotation can be identified. Recommendations included in this plan focus on efficiency through timing and proper rates of organic or inorganic fertilizer on farmland. Refer to the soil test summary report in this plan for all liming recommendations.

The data used in the form of maps and acreage was obtained from associated Soil and Water Conservation Districts. All other field information was provided by the operator for which this plan was written. Please refer to the enclosed documents for specific field by field information, i.e. nutrient balance sheets and productivity summaries. If other forms of nutrient sources are used during the plan (sludge, manure, etc...), appropriate balance sheets must be substituted to reflect nutrients applied or addressed in the form of a revised plan.

### **ADDITIONAL CONSIDERATIONS:**

- a.) Maintain agronomic pH levels for maximum plant utilization of applied nutrients.
- b.) Avoid or reduce fertilizer applications near streams, wells, or other environmentally sensitive areas.
  - \*100 feet from wells or springs
  - \*50 feet from surface water if surface applied
  - \*25 feet from surface water if injected
  - \*50 feet from sinkholes
  - \*50 feet from limestone rock outcrops
  - \*25 feet from other rock outcrops
  - \*10 feet from agricultural drainage ditches (5 feet if injected)
- c.) Control erosion in fields receiving fertilizer and/or manure applications. Do not apply to frozen or snow covered ground.
- d.) Split nitrogen applications on corn and small grain to minimize runoff, leaching and to help increase availability to plant over a longer period of time and to help increase yields.
- e.) Give credit for carryover nitrogen from previous legume crops, animal manures and any other organic source of nutrients.

f.) The proper timing rate, and placement of fertilizer and/or animal manure is critical for reducing leaching and runoff of nutrients from these sources. It also helps to ensure that you maximize uptake of nutrients by crops from the nutrients used.

g.) Make sure application equipment is properly calibrated to achieve proper application rates of nutrients.

h.) For odor control and to reduce drift, avoid spreading on windy days.

## Manure Spreading Summary

Season	Manure	Rate/ac	Tract	Field	Acres	Crop	Total in Field	Running Total
2007Sp	Omega sludge	15.0 tons	Airfield	1	9	Est. Turfgrass	137 tons	137 tons
		15.0 tons	Net Facili	1	13	Est. Turfgrass	200 tons	336 tons
		15.0 tons	Sea Coast	1	6	Est. Turfgrass	89 tons	425 tons

Season	Manure	Rate/ac	Tract	Field	Acres	Crop	Total in Field	Running Total
2008Sp	Omega sludge	15.0 tons	Airfield	1	9	Est. Turfgrass	137 tons	137 tons
		15.0 tons	Net Facili	1	13	Est. Turfgrass	200 tons	336 tons
		15.0 tons	Sea Coast	1	6	Est. Turfgrass	89 tons	425 tons

Season	Manure	Rate/ac	Tract	Field	Acres	Crop	Total in Field	Running Total
2009Sp	Omega sludge	15.0 tons	Airfield	1	9	Est. Turfgrass	137 tons	137 tons
		15.0 tons	Net Facili	1	13	Est. Turfgrass	200 tons	336 tons
		15.0 tons	Sea Coast	1	6	Est. Turfgrass	89 tons	425 tons

### Field Productivities for Major Crops

Tract Name	Tract/ Field	Field Name	Acres	Predominant Soil Series	Corn	Small Grain	Alfalfa	Grass Hay	Environmental Warnings
Airfield	/1	1	9	BERTIE	IIIa	II	Not Suited	II	
Net Facility	/1	1	13	MATAPEAKE	IIIa	II	III	II	
Sea Coast Pr	/1	1	6	MATAPEAKE	IIIb	III	III	III	

### Yield Range

Field Productivity Group	Corn Grain Bu/Acre	Barley/Intensive Wheat Bu/Acre	Std. Wheat Bu/Acre	Alfalfa Tons/Acre	Grass/Hay Tons/Acre
I	>170	>80	>64	>6	>4.0
II	150-170	70-80	56-64	4-6	3.5-4.0
III	130-150	60-70	48-56	<4	3.0-3.5
IV	100-130	50-60	40-48	NA	<3.0
V	<100	<50	<40	NA	NA

### Application Summary Report

#### 2007: Est. Turfgrass

Tract	Field	Acres	Manure Rate and Type (Season)	Incorp Time (Days)	Broadcast Commercial	Banded Commercial	Topdress Commercial
Airfield	1	9.1	15.0t Omega(Sp)	BC >= 7 day	105-90-210(Sp)		
Net Facility	1	13.3	15.0t Omega(Sp)	BC >= 7 day	105-60-210(Sp)		
Sea Coast Prop	1	5.9	15.0t Omega(Sp)	BC >= 7 day	85-50-120(Sp)		

#### 2008: Est. Turfgrass

Tract	Field	Acres	Manure Rate and Type (Season)	Incorp Time (Days)	Broadcast Commercial	Banded Commercial	Topdress Commercial
Airfield	1	9.1	15.0t Omega(Sp)	BC >= 7 day	95-90-210(Sp)		
Net Facility	1	13.3	15.0t Omega(Sp)	BC >= 7 day	95-60-210(Sp)		
Sea Coast Prop	1	5.9	15.0t Omega(Sp)	BC >= 7 day	75-50-120(Sp)		

#### 2009: Est. Turfgrass

Tract	Field	Acres	Manure Rate and Type (Season)	Incorp Time (Days)	Broadcast Commercial	Banded Commercial	Topdress Commercial
Airfield	1	9.1	15.0t Omega(Sp)	BC >= 7 day	90-90-210(Sp)		
Net Facility	1	13.3	15.0t Omega(Sp)	BC >= 7 day	90-60-210(Sp)		
Sea Coast Prop	1	5.9	15.0t Omega(Sp)	BC >= 7 day	70-50-120(Sp)		

**Soil Test Summary**

Tract	Field	Acre	Date	P2O5	K2O	Lab	Soil pH	Lime Date	rec. lime tons/Ac
Airfield	1	9	2006-Sp	L- (4 P lbs/acre)	L (38 K lbs/acre)	Virginia Tech	5.1	2007Sp	2.
Net Facility	1	13	2006-Sp	M- (20 P lbs/acre)	L (22 K lbs/acre)	Virginia Tech	5.	2007Sp	1.5
Sea Coast Property	1	6	2005-Fa	L (7 P lbs/acre)	L (34 K lbs/acre)	Virginia Tech	5.1	2007Sp	1.75

Lime Recommendations for Va Tech soil tests based on Soil buffer pH

Buffer pH	Target Soil pH					Acidity meq/100g
	5.2	5.8	6.2	6.5	6.8	
6.60	0.00	0.00	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00	0.00	0.03
6.40	0.00	0.00	0.00	0.00	0.50	0.06
6.38	0.00	0.00	0.25	0.25	0.50	0.12
6.36	0.00	0.00	0.25	0.25	0.75	0.24
6.34	0.00	0.00	0.25	0.50	0.75	0.36
6.32	0.00	0.00	0.50	0.50	0.75	0.48
6.30	0.00	0.00	0.50	0.75	1.00	0.59
6.28	0.00	0.25	0.75	0.75	1.00	0.71
6.26	0.00	0.25	0.75	1.00	1.25	0.83
6.24	0.00	0.25	0.75	1.00	1.25	0.95
6.22	0.00	0.50	1.00	1.00	1.50	1.07
6.20	0.00	0.50	1.00	1.25	1.50	1.19
6.18	0.00	0.75	1.25	1.25	1.75	1.30
6.16	0.00	0.75	1.25	1.50	1.75	1.42
6.14	0.25	0.75	1.50	1.50	2.00	1.54
6.12	0.25	1.00	1.50	1.75	2.00	1.66
6.10	0.50	1.00	1.50	1.75	2.25	1.78
6.08	0.50	1.25	1.75	2.00	2.25	1.90
6.06	0.50	1.25	1.75	2.00	2.25	2.02
6.04	0.75	1.25	2.00	2.00	2.50	2.13
6.02	0.75	1.50	2.00	2.25	2.50	2.25
6.00	1.00	1.50	2.00	2.25	2.75	2.37
5.95	1.00	1.75	2.25	2.50	3.00	2.67
5.90	1.25	2.00	2.50	3.00	3.25	2.96
5.85	1.50	2.25	2.75	3.25	3.50	3.26
5.80	1.75	2.50	3.25	3.50	3.75	3.56
5.75	2.00	2.75	3.50	3.75	4.25	3.85
5.70	2.25	3.00	3.75	4.00	4.50	4.15
5.65	2.50	3.25	4.00	4.25	4.75	4.45
5.60	2.75	3.50	4.25	4.50	5.00	4.74
5.55	3.00	3.75	4.50	4.75	5.25	5.04
5.50	3.25	4.00	4.75	5.25	5.50	5.34
5.40	3.75	4.50	5.25	5.75	6.25	5.93
5.30	4.25	5.00	5.75	6.25	6.75	6.52

\*table from VA nutrient management standards and criteria - revised october 2005



## Manure Production Summary

**Manure Name: Omega sludge**

*Animal Summary*

Other: 0

*Manure Storage Capacity:* 0. tons

*Manure Analysis:*

TKN: 8.15

P2O5: 2.08

NH4: 1.8

K2O: .62

*Plant Available Nutrients:*

Immediate Incorporation:

1.62 lbs N

2.08 lbs P2O5

.62 lbs K2O

Surface Applied:

.90 lbs N

2.08 lbs P2O5

.62 lbs K2O

Residual N:

yr 1: .76 lbs

yr 2: .32 lbs

yr 3: .13 lbs

*Manure Production*

Dec-Feb 0

Mar-May 0

Jun-Aug 0

Sep-Nov 0

Total Produced: 0

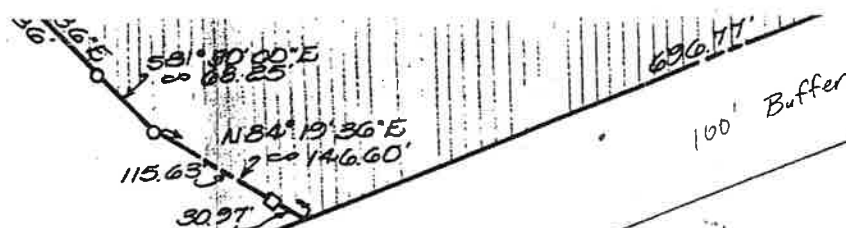
Manure Sold/yr: 0

Manure purch./yr: 0

### Solid Manure Production Calculation Details

Production [tons/yr] = (# confined)[animals] \* (avg. wt) [animal-lbs/animal] \* (prod factor)[lbs-manure/day/K-animal-lbs] \* (0.001)[K-animal-lbs/animal-lb] \* (365)[days/yr] \* (1/2000)[tons/lbs-manure]

Group Name	Animal	%(#) confined	avg wt	prod factor	produced
menhaden	Other	100()	0.	.	0



1605.03'

③  
AIR STRIP  
16.53 Ac. ±  
Robert

AIR 16.53 Ac. 1  
Surveyed by Robert L. Downing  
March 31, 1978  
684 1206.18

V5H 684

JOHN D. DEHL, INC.

① Water Well  
MTEC

Water well

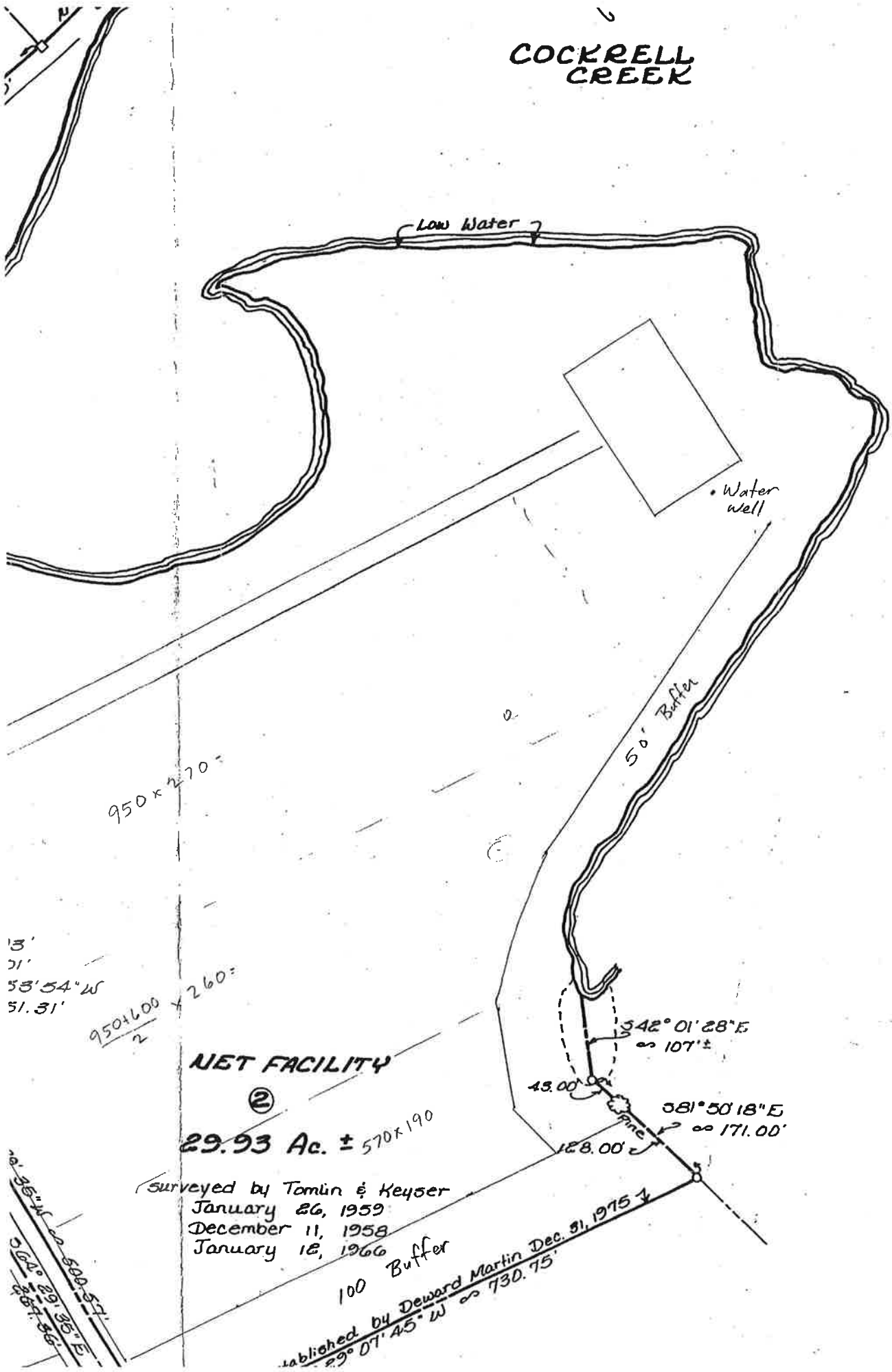
① Water

- 212.36  
 38' 45" W  
 N 57° 21' 01" W - 3064  
 368.52  
 ⑨ 0.187 Ac.

DERH

Note: This survey represents a composite plat of the lands of Zapata Haynie. All lines determined by previous surveys and found points as noted on the plat. Buildings not located.

# COCKRELL CREEK



950 x 270

13'  
21'  
53° 54' W  
51.31'

950 x 260  
2

NET FACILITY

②

29.93 Ac. ± 570 x 190

Surveyed by Tomlin & Keyser  
January 26, 1959  
December 11, 1958  
January 18, 1966

100 Buffer

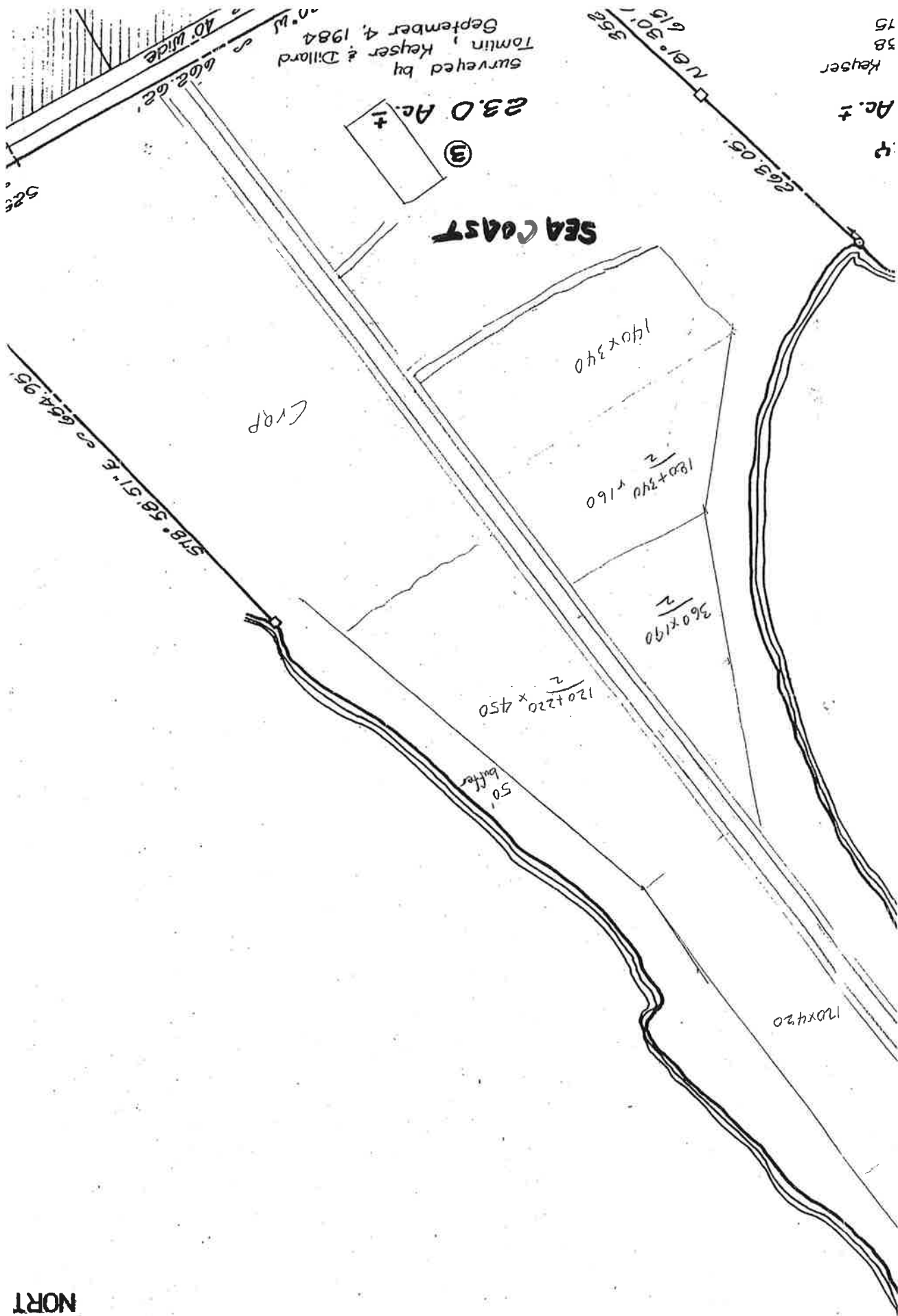
Established by Deward Martin Dec. 31, 1975  
29° 07' 45" W ≈ 730.75'

342° 01' 28" E  
≈ 107' ±

43.00' ±  
381° 50' 18" E  
≈ 171.00'  
128.00'

56° 25' 10" E ≈ 500.57'  
56° 25' 10" E ≈ 500.57'  
56° 25' 10" E ≈ 500.57'

FAIR  
NORT



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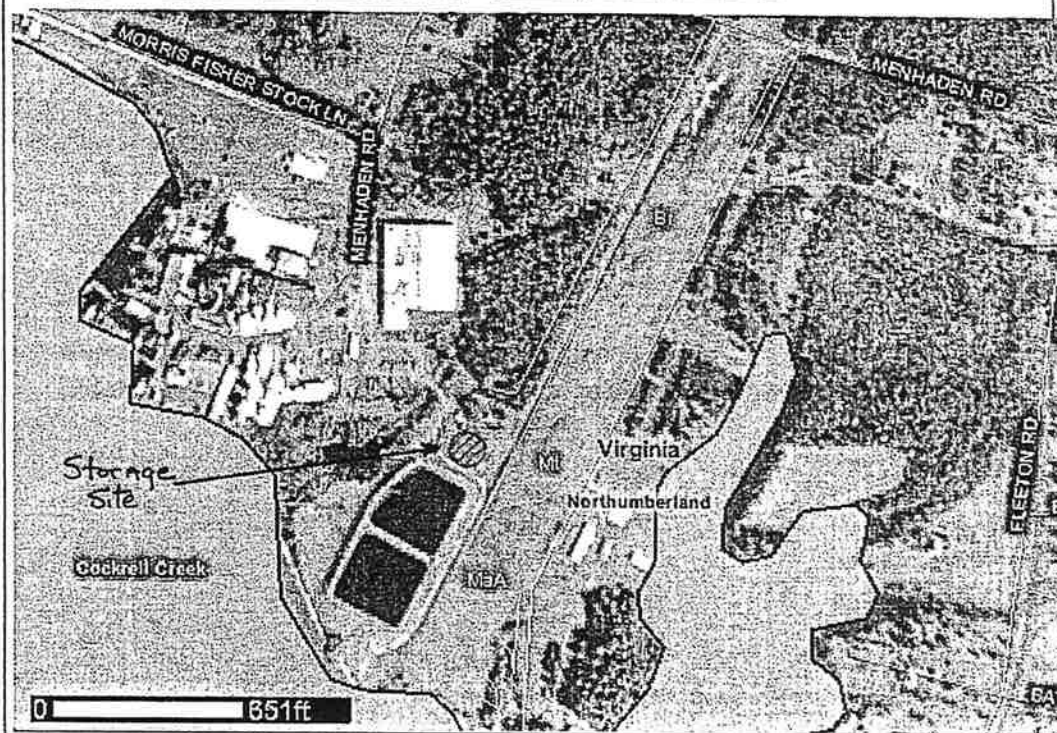
[Area of Interest](#)[Soil Map](#)[Soil Data Explorer](#)[Create Printable Document](#)**Map Unit Legend Summary****Northumberland and Lancaster Counties, Virginia**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Br	Bertie silt loam	6.6	52.4
MaA	Matapeake silt loam, nearly level	3.4	27.2
Mt	Mattapex silt loam	1.8	14.1
SsD	Sloping sandy land	0.7	5.3
To	Tidal marsh, low	0.1	1.0

↗  
This does not refer  
to swage lagoon  
but to staging  
area

**Soil Map**

Scale (not to scale)



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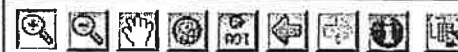
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## Map Unit Legend Summary

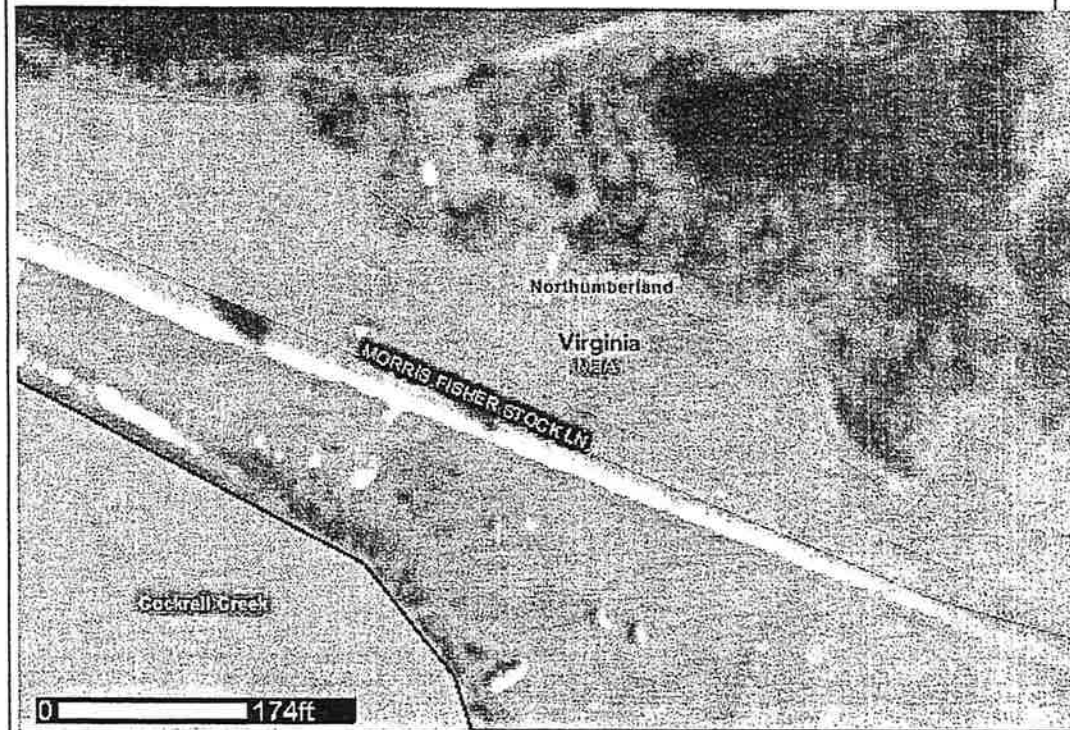
## Northumberland and Lancaster Counties, Virginia

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MaA	Matapeake silt loam, nearly level	2.3	91.8
SsD	Sloping sandy land	0.2	8.3

## Soil Map



Scale (not to scale)

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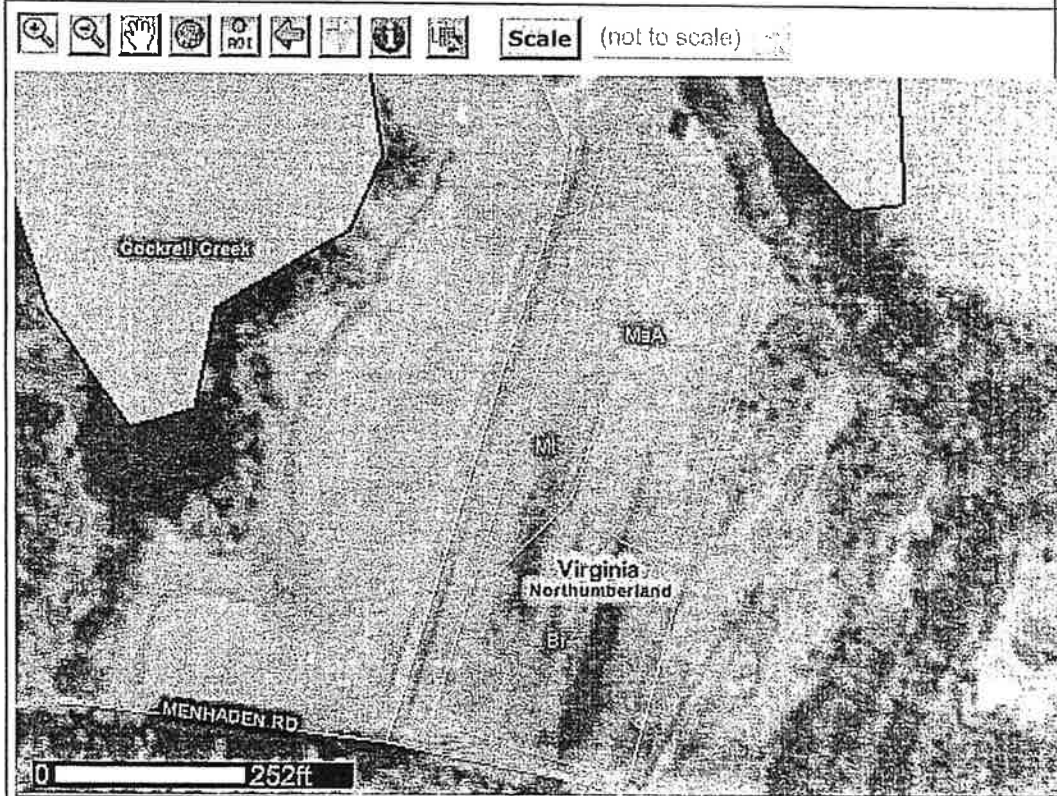
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## Map Unit Legend Summary

## Northumberland and Lancaster Counties, Virginia

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Br	Bertie silt loam	1.7	37.2
MaA	Matapeake silt loam, nearly level	2.2	47.6
Mt	Mattapex silt loam	0.5	11.1
SsD	Sloping sandy land	0.2	4.1

## Soil Map





**Nutrient Management Plan Balance Sheet**  
**(Spring, 2007-Spring, 2010)**  
**Omega Protein, Inc.**  
**Planner: Robert Waring (cert. No. 250)**

Tract: Airfield Location: Northumberland  
(N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - applied N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes	
1/1(N)	9/9	2007	Est. Turfgrass	120-120-220	0/0	15.t Omega (Sp)	>7	14-31-9	105-90-210	N/A	105-90-210		
		2008	*** **	120-120-220	0/11	15.t Omega (Sp)	>7	14-31-9	95-90-210	N/A	95-90-210(br)		
		2009	*** **	120-120-220	0/16	15.t Omega (Sp)	>7	14-31-9	90-90-210	N/A	90-90-210(br)		

Commercial Application Methods:  
br - Broadcast ba - Banded sd - Sidedress  
Notes:

Tract: Net Facility Location: Northumberland  
(N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes	
1/1(N)	13/13	2007	Est. Turfgrass	120-90-220	0/0	15.t Omega (Sp)	>7	14-31-9	105-60-210	N/A	105-60-210		
		2008	...	120-90-220	0/11	15.t Omega (Sp)	>7	14-31-9	95-60-210	N/A	95-60-210(br)		
		2009	...	120-90-220	0/16	15.t Omega (Sp)	>7	14-31-9	90-60-210	N/A	90-60-210(br)		

Commercial Application Methods:

br - Broadcast ba - Banded sd - Sidedress

Notes:

Tract: Sea Coast Property Location: Northumberland  
 (N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes	
1/1(N)	6/6	2007	Est. Turfgrass	100-80-130	0/0	15.t Omega (Sp)	>7	14-31-9	85-50-120	N/A	85-50-120(br)		
		2008	...	100-80-130	0/11	15.t Omega (Sp)	>7	14-31-9	75-50-120	N/A	75-50-120(br)		
		2009	...	100-80-130	0/16	15.t Omega (Sp)	>7	14-31-9	70-50-120	N/A	70-50-120(br)		

Commercial Application Methods:

br - Broadcast ba - Banded sd - Sidedress

Notes:

## ANIMAL WASTE ANALYSIS REPORT

Agricultural Service Laboratory

LAB No. 101313

Clemson University

OMEGA, PROTEIN

P O BOX 175

REEDVILLE VA

22539

ACCOUNT 1001703

DATE 10-27-2006

ROBERT.WARING@DCR.VIRGINIA.GOV

CONSULTANT ROBERT WARING VADCR

SAMPLE NO. FALL2006

MANURE: OTHER INTEGRATOR:

STORAGE: UNCOVERED

-----RESULTS REPORTED ON AN AS-SAMPLED BASIS-----

ANALYST				lbs/ton
pj	Ammonium Nitrogen	0.09	%	1.80
pj	Total Nitrogen	0.41	%	8.15
-----				
dw/km	Phosphorus as P2O5	0.10	%	2.08
dw/km	Potassium as K2O	0.03	%	0.62
dw/km	Calcium	0.14	%	2.85
dw/km	Magnesium	0.03	%	0.52
	Sulfur	0.05	%	0.91
	Zinc	11.02	ppm	0.02
	Copper	50.55	ppm	0.10
	Manganese	7.13	ppm	0.01
	Sodium	51.20	ppm	0.10
	Aluminum	3629.40	ppm	7.26
jp	Moisture	35.19	%	

All of the potash in the animal waste should be plant available in the first year of application. Although not all of the phosphorous is available in the first year, its availability should be comparable to that in commercial fertilizers.

The rate of animal waste to apply for crop production is dependent on the nutrient content of the waste, method of application and incorporation, soil test, crop to be grown, and previous manure applications. In most cases, the plant available nitrogen content of the waste is used to determine the rate of application.

APPROVED BY \_\_\_\_\_

Analysis performed in accordance with Clemson Laboratory Manure Analysis procedures, February, 2004.

Manure analysis in Virginia is funded by the Dept. of Conservation and, Recreation, Div. of Soil and Water Conservation.

The Agricultural Service Laboratory is a public service of Clemson University, an equal opportunity educational institution: <http://www.clemson.edu/agrsrvlb>

# Virginia Cooperative Extension

## Soil Test Report

Northumberland County Office  
P.O. Box 400  
Heathsville, VA 22473-0400  
804-580-5694

Virginia Tech Soil Testing Laboratory  
145 Smyth Hall (0465)  
Blacksburg, VA 24061  
www.soiltest.vt.edu

SEE ENCLOSED NOTES:

1.17

DOWN

PROTEIN OMEGA  
POBOX 175

C P  
O O  
P R  
Y

REKIDVILLE, VA 22539

## SAMPLE HISTORY

Sample ID	Location	Field No.	Plant	Time	Soil	Water	Other	Notes
SOUTH	Sea Coast							

## LAB TEST RESULTS (see Note 1)

Sample ID	pH	EC	Ca	Mg	N	P	K	Na	Cl	Other
	7	34	576	56	15.5	5.0	2.5	50.1	0.2	
	L	L	L+	L+	SUFF	SUFF	SUFF	SUFF	SUFF	
Sample ID	pH	EC	Ca	Mg	N	P	K	Na	Cl	Other
	5.1	6.07	3.7	53.4	46.6	39.2	6.3	1.2		

## FERTILIZER AND LIMESTONE RECOMMENDATIONS

Crop: LAWN MAINTENANCE - BLUEGRASS, FESCUE (202)

612. LIME RECOMMENDATIONS: Apply 90 pounds of agricultural limestone (ground or pulverized) per 1000 square feet in several small applications of up to 50 lbs each, at intervals of 1 to 6 months, until the full amount is applied.

205. FERTILIZER RECOMMENDATIONS: Apply a 1-1-1, 1-2-2 or 2-1-1 ratio fertilizer (examples of grades to use are 10-10-10, 5-10-10, 10-20-20, 16-8-8, etc.) according to the instructions in the enclosed note on lawn fertilization.

# Virginia Cooperative Extension

## Soil Test Report

Northumberland County Office  
P.O. Box 400  
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804-580-5694

Virginia Tech Soil Testing Laboratory  
145 Smyth Hall (0465)  
Blacksburg, VA 24061  
www.soiltest.vt.edu

SEE ENCLOSED NOTES:

1 3

OWNER

JETT LYELL  
OMEGA PROTEIN  
P O BOX 175  
REEDVILLE, VA 22539

C F  
O O  
P R  
Y

BILL BLACK  
401 STUDEWOOD STE 208  
HOUSTON, 77007

## SAMPLE HISTORY

Sample ID	Field ID	LAST CROP		LAST LIME APPLICATION		SOIL INFORMATION				
		Name	Yield	Months Prev.	Tons/Acre	SMU-1 %	SMU-2 %	SMU-3 %	Yield Estimate	Productivity Group
AIRFD	AIRFIELD			---	0					III

## LAB TEST RESULTS (see Note 1)

Analysis	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)	Salts (ppm)
Result	4	38	313	54	1.1	0.8	0.3	43.6	0.1	38
Rating	L	L	L	L+	SUFF	SUFF	SUFF	SUFF	SUFF	L

Analysis	Soil pH	Buffer pH	Est-CEC (meq/100g)	Acidity (%)	Base Sat. (%)	Ca Sat. (%)	Mg Sat. (%)	K Sat. (%)	Organic Matter (%)
Result	5.1	6.00	3.4	69.3	30.7	22.8	6.5	1.4	2.2

## FERTILIZER AND LIMESTONE RECOMMENDATIONS

Crop: Orchardgrass/Fescue-Clover Pasture (40)

Lime, TONS/AC		Fertilizer, lb/A		
Amount	Type	N	P2O5	K2O
2	AG	50	50	70

890. Soil Survey map unit information was not provided, neither was a field Yield estimate. As a result only generalized fertilizer recommendations could be made. Field specific and more scientifically-based recommendations can be provided if soil map unit information is included in the future. Contact your extension agent to learn how to obtain available soil survey information for your farm.

825. If stand contains less than 25 per cent clover, apply 40-60 lbs N/A.

131. If additional production is needed later on, apply 40 to 60 lbs/A of N during the grazing season. If you are planning to overseed a legume into the stand, omit the N recommendation.

122. P2O5 and K2O recommendations are for annual application. However, rates can be doubled and applied every other year if desired.

677. Soluble Salts are not high enough to cause salt injury.

The analytical methods used are from VCE Publication 452-881, *Laboratory Procedures - Virginia Tech Soil Testing and Plant Analysis Laboratory*, revised January 1996. pH determinations by JNH on 03-21-06. Elemental analysis by BR on 03-21-06.

# Virginia Cooperative Extension

## Soil Test Report

Northumberland County Office  
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Virginia Tech Soil Testing Laboratory  
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www.soiltest.vt.edu

SEE ENCLOSED NOTES:

1 3

OWNER

JETT LYELL  
OMEGA PROTEIN  
P O BOX 175  
REEDVILLE, VA 22539

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POR  
Y

BILL BLACK  
401 STUDEWOOD STE 208  
HOUSTON, 77007

## SAMPLE HISTORY

Sample ID	Field ID	LAST CROP		LAST LIME APPLICATION		SOIL INFORMATION				
		Name	Yield	Months Prev.	Tons/Acre	SMU-1 %	SMU-2 %	SMU-3 %	Yield Estimate	Productivity Group
NETHS	NET HOUSE			---	0	MAA 100				II

## LAB TEST RESULTS (see Note 1)

Analysis	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)	Salts (ppm)
Result	20	22	182	36	1.1	1.9	1.7	47.5	0.1	64
Rating	M-	L	L-	L	SUFF	SUFF	SUFF	SUFF	SUFF	L

Analysis	Soil pH	Buffer pH	Est-CEC (meq/100g)	Acidity (%)	Base Sat. (%)	Ca Sat. (%)	Mg Sat. (%)	K Sat. (%)	Organic Matter (%)
Result	5.0	6.11	2.4	73.2	26.8	19.3	6.3	1.2	2.0

## FERTILIZER AND LIMESTONE RECOMMENDATIONS

Crop: Orchardgrass/Fescue-Clover Pasture (40)

Lime, TONS/AC		Fertilizer, lb/A		
Amount	Type	N	P2O5	K2O
1.5	Dolomitic	50	90	110

825. If stand contains less than 25 per cent clover, apply 40-60 lbs N/A.

131. If additional production is needed later on, apply 40 to 60 lbs/A of N during the grazing season. If you are planning to overseed a legume into the stand, omit the N recommendation.

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677. Soluble Salts are not high enough to cause salt injury.

A+L Lab  
Richard

804 743 9401

462 5780

Barbara







# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

### PIEDMONT REGIONAL OFFICE

4949-A Cox Road, Glen Allen, Virginia 23060

(804) 527-5020 Fax (804) 527-5106

[www.deq.virginia.gov](http://www.deq.virginia.gov)

L. Preston Bryant, Jr.  
Secretary of Natural Resources

David K. Paylor  
Director

Gerard Seeley, Jr.  
Regional Director

**April 17, 2007**

Mr. Graham Lyell Jett  
Production Manager  
Omega Protein, Inc.  
P.O. Box 175  
Reedville, VA 22539

RE: Adjusted Proposed Consent Order  
Omega Protein, Inc.  
VPDES VA0003867

Dear Mr. Jett:

I have re-adjusted the Consent Order after receiving your voicemail on April 13, 2007, regarding an extension in time. Enclosed are two originals of the adjusted proposed Consent Special Order affecting Omega Protein, Inc.

If the Order is acceptable, please have the two originals signed and notarized, and return them to me no later than April 19, 2007. We will then give the proposed Order a 30-day public notice in the Virginia Registrar and a local newspaper. We anticipate asking the Board to approve this Order at its Board meeting on June 27, 2007.

If you have any questions, please call me at (804) 527-5093.

Sincerely

A handwritten signature in dark ink, appearing to read "Frank E. Lupini".

Frank E. Lupini  
Enforcement Specialist, Sr.

Working changes

From Bob Robinson

APPENDIX A

RECEIVED

MAR 23 2007

PRO

Omega Protein shall:

1. On or before April 1, 2007, purchase, install and operate a generator to provide power to the aerators in the outfall 002 lagoon during local power outages. The generators shall be of sufficient size so that Permit compliance will be maintained. On April 30, 2007, submit to the Department for review and approval the modifications made to the O&M manual incorporating the operation and maintenance of the generator.
2. On or before April 1, 2007, increase spare parts inventory at the Facility so that, whenever practicable, repairs on critical treatment system appurtenances may be made within two days.
3. Upon issuance of this Order comply with all Permit requirements.

**Pursuant to this Order**, communications regarding this Order and its requirements, other than the civil charge payment required by Section D of the Order, shall be addressed as follows:

Frank Lupini  
Department of Environmental Quality  
Piedmont Regional Office  
4949-A Cox Road  
Glen Allen, Virginia 23060

Omega Protein shall confirm, in writing, completion of the Order's requirements to the above address **within five (5) days of completion**. Any plans or schedules submitted as part of this Order, once approved by the Department shall become an enforceable part of this Order.



RECEIVED

APR 24 2007

PRO

# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

### PIEDMONT REGIONAL OFFICE

4949-A Cox Road, Glen Allen, Virginia 23060

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Regional Director

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If you have any questions, please call me at (804) 527-5093.

Sincerely

Frank E. Lupini  
Enforcement Specialist, Sr.



Graham Lyell Jett  
General Manager

Frank - FYI -  
D.

RECEIVED

MAY 24 2007

PRO

May 22, 2007

Ms Denise Mosca  
Virginia Department of Environmental Quality  
4949-A Cox Road  
Glen Allen, Virginia 23060

Re: Second Quarterly Report of Progress, 2007  
VA0003867

Dear Ms Mosca,

We have launched a full scale experiment using heterotrophic bio-augmentation to reduce phosphorus in the 002 discharge. The goal is to increase organic removal rates (BOD removal) which in turn will decrease the ortho-phosphate and total Phosphorous levels within the aeration lagoons. Through the application of bioaugmentation technology we believe we can significantly and consistently increase the bacterial activity within the aeration lagoon and artificially shift the bacterial population into one that effectively removes BOD, builds dense, firm bacterial floc while allowing for increased Phosphorous removal and nitrification stability.

This program is scheduled to start the week of May 21st. The first sampling/analysis to demonstrate effectiveness of this trial program will be at the occasion of the first discharge which we expect in early to mid June.

Alum treatment is still considered a practical method for phosphorus removal—bench studies are continuing.

Sincerely,

Graham Lyell Jett

cc/ William Black



**OMEGA  
PROTEIN®**

Healthy Products for a Healthy World®

Graham Lyell Jett  
General Manager

VA0003867

R-6-RT

**RECEIVED**

MAY 24 2007

**PRO**

May 22, 2007

Ms Denise Mosca  
Virginia Department of Environmental Quality  
4949-A Cox Road  
Glen Allen, Virginia 23060

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Alum treatment is still considered a practical method for phosphorus removal—bench studies are continuing.

Sincerely,

Graham Lyell Jett

cc/ William Black

*Frank Lupini*



**OMEGA  
PROTEIN**

Healthy Products for a Healthy World®

Theodore Schultz  
Regulatory Compliance

**RECEIVED**

JUN 15 2007

**PRO**

Mr. Frank Lupini  
Department of Environmental Quality  
Piedmont Regional Office  
4949-A Cox Road  
Glen Allen, VA 23060-6296

June 7, 2007

April 2007 Consent Order VA0003867

Dear Frank;

Our recent Consent Order addresses certain violations documented in an NOV dated Nov 14, 2006. Appendix A of that Order directs us to purchase, install and operate a generator to provide emergency power to the aerators in the lagoon ponds during a local power outage. This was to have been performed by April 1, 2007, with an updated O&M manual submitted by April 30, 2007.

We have yet to receive a final signed copy of the Consent Order from DEQ. However, the generator has been installed and successfully tested. Enclosed is an updated version of our O&M manual. I direct you to page 24 for a discussion of the generator and Appendix G for supporting documentation.

Item 2 of Appendix A was addressed prior to April 1<sup>st</sup>. We believe we are in conformity with item 3.

Sincerely,

Ted Schultz



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

PIEDMONT REGIONAL OFFICE

4949-A Cox Road, Glen Allen, Virginia 23060

(804) 527-5020 Fax (804) 527-5106

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L. Preston Bryant, Jr.  
Secretary of Natural Resources

David K. Paylor  
Director

Gerard Seeley, Jr.  
Regional Director

### STATE WATER CONTROL BOARD ENFORCEMENT ACTION SPECIAL ORDER BY CONSENT ISSUED TO OMEGA PROTEIN, INC. *VPDES VA0003867*

#### **SECTION A: Purpose**

This is a Consent Special Order issued under the authority of Va. Code §§ 10.1-1185 and 62.1-44.15(8a) and (8d), between the State Water Control Board and Omega Protein, Inc., for the purpose of resolving certain violations of environmental law and regulations.

#### **SECTION B: Definitions**

Unless the context clearly indicates otherwise, the following words and terms have the meaning assigned to them below:

1. "Va. Code" means the Code of Virginia (1950), as amended.
2. "Board" means the State Water Control Board, a permanent citizens' board of the Commonwealth of Virginia as described in Va. Code §§ 10.1-1184 and 62.1-44.7.
3. "Department" or "DEQ" means the Department of Environmental Quality, an agency of the Commonwealth of Virginia as described in Va. Code § 10.1-1183.
4. "Director" means the Director of the Department of Environmental Quality.
5. "Order" means this document, also known as a Consent Special Order.

6. "Omega or Omega Protein" means Omega Protein, Inc., certified to do business in Virginia and its affiliates, partners, subsidiaries, and parents.
7. "Facility" means the Omega Protein fish processing and wastewater treatment system located in Reedville, Virginia.
8. "PRO" means the Piedmont Regional Office of DEQ, located in Glen Allen, Virginia.
9. "Permit" means VPDES permit No. VA0003867, which became effective December 2, 2005, and will expire December 1, 2010.
10. "O&M" means operations and maintenance.

#### **SECTION C: Findings of Fact and Conclusions of Law**

1. Omega Protein owns and operates a wastewater treatment facility in Northumberland County, Virginia. This Facility is the subject of VPDES Permit VA0003867, which allows Omega Protein to discharge treated wastewater into Cockrell's Creek and the Chesapeake Bay in strict compliance with terms, limitations and requirements outlined in the Permit.
2. A Consent Order was issued to Omega Protein on June 29, 2005, to address ammonia and toxicity permit effluent violations at outfall 002. The Order also incorporated the remaining requirements of a previous Order issued on March 26, 2003. The June 29, 2005, Order contained corrective actions and interim limits for ammonia and toxicity at outfall 002 and an interim limit for cyanide at outfall 006.
3. On November 14, 2006, the Department issued a Notice of violation (NOV) to Omega for failure to meet the Permit's ammonia limit at outfall 002 during the August and September 2006 monitoring periods. The August ammonia violation also exceeded the June 29, 2005, Order's interim limit. Failure to meet Permit limits is a violation of VA Code § 62.1-44.5 and failure to meet Order limits is a violation of § 62.1-44.31. In addition, Omega was cited for failure to submit a quarterly progress report on achieving compliance with final phosphorous limits required by Part I.B.16. of the VPDES Permit.
4. The Department discussed the NOV with Omega on December 6, 2006, and Omega stated that the ammonia violations were due in part to the breakdown of the system's ammonia stripper and a power outage that occurs at the Facility on occasion. Omega stated that it planned to examine the facilities spare parts inventory and install an automatic generator to maintain power to the critical portions of the treatment process in order to maintain compliance during power outages.



5. On June 15, 2007, Omega informed the Department that it had installed generators for backup power on the aerators of the wastewater treatment system lagoons.
6. On June 26, 2007, Omega informed the Department that it had purchased an inventory of spare parts for the ammonia stripper system. The parts on hand will allow Omega to facilitate system repairs within two days of failure.
7. On July 26, 2007, Department staff conducted a site visit and confirmed the installation of backup power and the purchase of spare parts for the ammonia stripper system.

#### **SECTION D: Agreement and Order**

Accordingly, the Board, by virtue of the authority granted it in Va. Code § 62.1-44.15(8a) and (8d), orders Omega Protein, and Omega Protein voluntarily agrees, to pay a civil charge of \$27,900 within 30 days of the effective date of the Order in settlement of the violations cited in this Order. The payment shall note that it is being made pursuant to this Order and shall note the Federal Identification Number for Omega Protein. Payment shall be by check, certified check, money order, or cashier's check payable to "Treasurer of Virginia" and delivered to:

Receipts Control  
Department of Environmental Quality  
Post Office Box 1104  
Richmond, Virginia 23218

#### **SECTION E: Administrative Provisions**

1. The Board may modify, rewrite, or amend the Order with the consent of Omega Protein, for good cause shown by Omega Protein, or on its own motion after notice and opportunity to be heard.
2. This Order only addresses and resolves those violations specifically identified herein including those matters addressed in the Notice of Violation issued to Omega Protein by DEQ on November 14, 2006. This Order shall not preclude the Board or the Director from taking any action authorized by law, including but not limited to: (1) taking any action authorized by law regarding any additional, subsequent, or subsequently discovered violations; (2) seeking subsequent remediation of the Facility as may be authorized by law; or (3) taking subsequent action to enforce the Order. This Order shall not preclude appropriate enforcement actions by other federal, state, or local regulatory authorities for matters not addressed herein.
3. In the interest of resolving this matter without delay and expense of litigation Omega Protein agrees to the entrance of this Consent Order, and admits the

jurisdictional allegations of the Order but neither admits nor denies the Findings of Fact or the Conclusions of Law herein.

4. Omega Protein consents to venue in the Circuit Court of the City of Richmond for any civil action taken to enforce the terms of this Order.
5. Omega Protein declares it has received fair and due process under the Administrative Process Act, Va. Code §§ 2.2-4000 *et seq.*, and the State Water Control Law and it waives the right to any hearing or other administrative proceeding authorized or required by law or regulation, and to any judicial review of any issue of fact or law contained herein. Nothing herein shall be construed as a waiver of the right to any administrative proceeding for, or to judicial review of, any action taken by the Board to enforce this Order.
6. Failure by Omega Protein to comply with any of the terms of this Order shall constitute a violation of an order of the Board. Nothing herein shall waive the initiation of appropriate enforcement actions or the issuance of additional orders as appropriate by the Board or the Director as a result of such violations. Nothing herein shall affect appropriate enforcement actions by any other federal, state, or local regulatory authority.
7. If any provision of this Order is found to be unenforceable for any reason, the remainder of the Order shall remain in full force and effect.
8. Omega Protein shall be responsible for failure to comply with any of the terms and conditions of this Order unless compliance is made impossible by earthquake, flood, other acts of God, war, strike, or such other occurrence. Omega Protein shall show that such circumstances were beyond its control and not due to a lack of good faith or diligence on its part. Omega Protein shall notify the DEQ Piedmont Regional Office in writing when circumstances are anticipated to occur, are occurring, or have occurred that may delay compliance or cause noncompliance with any requirement of the Order. Such notice shall set forth:
  - a. the reasons for the delay or noncompliance;
  - b. the projected duration of any such delay or noncompliance;
  - c. the measures taken and to be taken to prevent or minimize such delay or noncompliance; and
  - d. the timetable by which such measures will be implemented and the date full compliance will be achieved.

Failure to so notify the DEQ Piedmont Regional Office within 24 hours of learning of any condition above, which Omega Protein intends to assert will result

in the impossibility of compliance, shall constitute a waiver of any claim to inability to comply with a requirement of this Order.

9. This Order is binding on the parties hereto, their successors in interest, designees and assigns, jointly and severally.
10. This Order shall become effective upon execution by both the Director or his designee and Omega Protein. Notwithstanding the foregoing, Omega Protein agrees to be bound by any compliance date which precedes the effective date of this Order.
11. This Order will terminate effective upon the Department's receipt of the payment described herein. Termination of this Order, or any obligation imposed in this Order, shall not operate to relieve Omega Protein from its obligation to comply with any statute, regulation, permit condition, other order, certificate, certification, standard, or requirement otherwise applicable.
12. By its signature below, Omega Protein voluntarily agrees to the issuance of this Order.

And it is so ORDERED this 26<sup>th</sup> day of September, 2007.

 for

Gerard Seeley, Jr., Regional Director  
Department of Environmental Quality

Omega Protein voluntarily agrees to the issuance of this Order.

By: 

Date: 7-30-2007

Commonwealth of Virginia

City/County of Northumberland

The foregoing document was signed and acknowledged before me this 30th day of

July, 2007, by Graham Lyell Jett, who is  
(name)

General Manager of Omega Protein, on behalf of the Corporation.  
(title)

*Deane F. Saunders*

Notary Public

Notary # 360980

My commission expires: July 31, 2009



OMEGA  
PROTEIN

Healthy Products for a Healthy World

✓A0003867  
R-6-RT

## FACSIMILE

To: Denise Mosca                      FAX: (804) 527-5106  
FROM: Ted Schultz                      PHONE: (804) 453-4211  
DATE: 6 July 2007                      PAGES: 3 w/cover  
SUBJECT: Vessel Discharge Logs

Here are the log sheets that Lyell supplied.

*Theodore Schultz*

Regulatory Compliance  
[tschultz@rivnet.net](mailto:tschultz@rivnet.net)

VESSEL NAME Johns. Dargster Jr.

[illegible]

VESSEL NAME Smith Island

[illegible]

**Mosca,Denise**

VAD003867  
R/G/R+

**From:** Mosca,Denise  
**Sent:** Wednesday, July 11, 2007 9:19 AM  
**To:** gljett@crosslink.net  
**Cc:** 'Swiftcreekinc@aol.com'; bilenpro@swbell.net; tschultz@rivnet.net  
**Subject:** Response to Groundwater Monitoring request

I have discussed your request with my supervisor to decrease the frequency of groundwater sampling at the Omega wells, from quarterly to semi-annually. The request was submitted with the monitoring results dated June 22, 2007. The request is being deferred at this time due to a lack of a statistically valid set of sample results for each parameter. Please submit your request again when the appropriate number of sample results have been obtained along with documentation that no change is observed in the monitoring wells compared to the upgradient well. Let me know if you have any questions.  
Denise Mosca

Denise Mosca  
Environmental Specialist II  
DEQ-Piedmont Regional Office  
4949-A Cox Road,  
Glen Allen, Va. 23060  
(804) 527-5027  
fax (804) 527-5106

7/17/2007





Graham Lyell Jett  
General Manager

RECEIVED

AUG 27 2007

PRO

VA0003867

R-6-R4

August 23, 2007

Ms. Denise Mosca  
Virginia Department of Environmental Quality  
4949-A Cox Road  
Glen Allen, VA 23060

Re: Third Quarterly Report of Progress, 2007 - Regarding Phosphorus - VA0003867

Dear Ms. Mosca:

The full scale experiment using heterotrophic bio-augmentation to reduce phosphorus in the 002 discharge required modification after two months of operation. The modification is now in effect and being monitored. Results should become obvious in early October.

Alum treatment is still considered a practical and proven method for phosphorus removal. We plan to initiate a full scale test if the heterotrophic bio-augmentation fails to meet the goals.

Sincerely,

Graham Lyell Jett

GLJ:sdh

cc: William Black



VA0003687 RGR

Theodore Schultz  
Regulatory Compliance

27 August 2007

RECEIVED

AUG 31 2007

Ms. Denise Mosca  
Department of Environmental Quality  
4949-A Cox Road  
Glen Allen, VA 23060-6296

RE: Permit VA0003687

Dear Denise:

We have made certain changes to our Ammonia Stripper System. These modifications do not change the operation or purpose of the system, but automate its control. However, these changes do necessitate modification to our Operations and Maintenance Manual. As dictated by Part 1 B 9 of the permit, a new revision of the manual is enclosed for VDEQ review and approval. A new section for the controller begins on page 26.

Should you require any additional information, please feel free to contact me.

Sincerely,

Ted Schultz

Enclosure

**OMEGA PROTEIN**  
**OPERATIONS & MAINTENANCE MANUAL**  
**Water Permit VA0003867**

**OMEGA PROTEIN**  
**P.O. Box 175**  
**Reedville, Virginia 22539**  
**(804) 453-4211**  
**VDPES Permit # VA0003867**

**Manual prepared by Graham Lyell Jett**  
**July 27, 1998**  
**Revised by Ted Schultz**  
**August 1, 2007**

## **Revision History**

First Revision	July 27, 1998
Second Revision	Mar 6, 2006
Third Revision	May 17, 2006
Incorporated Ground Water Monitoring Strategy for aerated lagoons	
Forth Revision	Aug 10, 2006
Incorporated details of the Scrubber recirculation system	
Fifth Revision	May 3, 2007
Added VDEQ contact information	
Sixth Revision	May 15, 2007
Added lagoon emergency generator information	
Seventh Revision	August 1, 2007
Added Ammonia Stripper Controller information	

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# **OPERATIONS AND MAINTENANCE MANUAL**

## **PURPOSE**

The purpose of this "Operations and Maintenance Manual" is to establish procedures for all personnel who are responsible for water quality at this facility to follow regarding the requirements of our VDPES Permit. This manual addresses the necessary equipment, sampling methods and sampling schedule which should be followed in accordance to our water permit # VA0003867 ("Attachment A"). It is important to become familiar with the contents of this manual. Keep in mind that our facility is maintained so that there is minimal potential for surface or ground water contamination and these procedures have been established to assist you in attaining this goal. Any questions regarding this manual or its contents should be directed to:

Ted Schultz  
P.O. Box 175  
Reedville, VA 22539  
(804) 453-4211

## DESCRIPTION

### Facility and Process:

Omega Protein, located in Reedville, Virginia is a manufacturer of fish meal and fish oil. Our fishing vessels harvest menhaden fish and transport them back to our processing facility where they are unloaded and stored temporarily in a raw storage bin. The fish are conveyed through the processing facility; where they are cooked and pressed. The later operation is how fish oil & water are separated from the fish solids. The solids are then conveyed to dryers where moisture content is reduced from (approximately) 40% to 10% in the final product. Exhaust from the rotary dryers is discharged through a series of cyclones, scrubbers and vented from a tall stack. Water used in the scrubbers is sea water which is then recirculated, mixed with the non-contact cooling water, and is then discharged through outfall 001 back into Cockrell's Creek. After the pressing, the liquid is pumped to decanters and high speed centrifuges to separate the aqueous phase from fish oil. The aqueous phase is then sent to storage, pending concentration of the solids in the evaporator(s). The evaporator concentrates this product from (approximately) 10% to 50% solids. The water removed from the solids in the evaporators is pretreated, via an ammonia stripper, and sent to the aeration lagoons. Treated water from the lagoons is eventually released to Cockrell Creek through outfall 002. The second half of the Non-Contact cooling water from the heat exchangers is discharged at outfall 995. Fish oil is pumped to storage and shipped as a raw product. Alternatively, it may be pumped to the Health and Science Center and refined. Chemicals used on the premises are food grade sulfuric acid, nitric acid, phosphoric acid, caustic soda and ethoxyquin.



## **EMERGENCY TELEPHONE NUMBERS:**

In the event of an emergency, the following list contains the telephone numbers of the appropriate contact personnel:

General Manager	Lyell Jett	(804) 580-2588
Vessel Manager	Danny Ford	(804) 580-9091
Production Manager	Andy Hall	(804) 453-7517
National Response Center		1-800-424-8802
VA Dept. of Emergency Services		(804) 674-2400
		OR
		(804) 674-2405
VWCB Pollution Response Office		(804) 527-5200
U.S. Coast Guard - MSO Hampton Roads		(804) 441-3290
OR - Operations Center		(804) 441-3307
Industrial Marine Service (IMS)		(804) 543-5718
Fire Department		911
Ambulance		911
Police		911
Hospital		(804) 435-8000

## **VDEQ Contact Information:**

The following list may be used to contact various personnel at VDEQ. Note all email addresses have the domain "deq.state.va.us".

Name	Title	Office	Phone	Email
Cynthia Akers	Senior Enforcement Specialist	PRO	(804) 527-5079	
Mark Alling	Water Monitoring & Planning Manager	PRO	(804) 527-5021	
Raymond Barrows, JR., P.E.	Wastewater Engineer	PRO	(804) 527-5167	rrbarrows
J.R. Bell, Jr.	Water Compliance Manager	PRO	(804) 527-5025	jrbell
Allen Brockenbrough	Environmental Specialist, II P.E.	Central	(804)689-4147	abrockenbrough
Chris French		PRO	(804) 527-5124	
Ellen Gilinski				
James Golden	Deputy Director	PRO	(804) 527-5047	
J. Mason Harper	Environmental Engineer Senior Aquatic Toxicologist	PRO	(804) 527-5094	
John Kennedy				
Curt Lindeman	Manager Water Permits	PRO	(804) 527-5038	
Frank Lupini	Enforcement Specialist	PRO	(804) 527-5093	felupini
Denise Mosca	Environmental Engineer Senior	PRO	(804) 527-5027	dmmosca
Steve Morris	Compliance Specialist Senior	PRO	(804) 527-5042	
Kathleen O'Connell	Water Enforcement Manager	Central	(804) 698-4273	kfoconnell

### **VDEQ Contact Information (Con't):**

David Paylor	Director DEQ	Central		
Alan Pollock	Director, Office of Water Quality	Central		
Bruce Pollock	Environmental Quality Enforcement Specialist, Senior	PRO	(804) 527-5143 (804) 527-5020	bcpollock
Gerry Sealey	Director	PRO	(804) 527-5020	gseeley
Steve Stell	Environmental Chief Inspector	PRO	(804) 527-5055	
Dick Stone	Environmental Engineer	PRO	(804) 527-5088	rostone
Veron Williams	Manager of Enforcement (Water and Air)	PRO	(804) 527-5086	
FAX			(804) 527-5006	

## **WATER SAMPLING EQUIPMENT FOR OUTFALLS 001, 002, 003, 995, VESSEL MAINTENANCE, REFRIGERATION AND COCKRELL'S CREEK**

We will need:

- 2 Refrigerators (must be kept at less than 4 °C)
- 1 PH Meter (with thermometer)
- 1 Dissolved Oxygen Meter
- 1 Celsius Thermometer
- 1 Special sampler for refrigeration, Cockrell's Creek and Bay Sampling

Critical Spare Parts Inventory for above equipment:

- AA, C and D batteries (stocked in storeroom)
- Electrode for PH meter
- Membrane for DO meter
- Calibration buffers for pH meter
- NIST traceable thermometer

Types of Sampling Containers and miscellaneous items kept on hand:

- Glass Jars with lids
- Aluminum foil
- Plastic Containers with caps
- Sulfuric Acid (used for sample preservation)
- Sodium Hydroxide (used for sample preservation)
- Nitric Acid (used for sample preservation)
- Distilled water
- Ice/freezer paks
- 2 Sets of coolers (used for sample shipment)

## **WATER SAMPLING PROCEDURES**

### **Outfall 001 (Scrubber)**

Take a sample daily for temperature measurement using immersion stabilization. This outfall also needs to be sampled at least three days per week. Samples requiring 24 hour continuous collection are to be taken at the Hach AWRS unit on the dock. Single grab samples are to be taken at the sampling port on the outfall pipe near the Hach unit. Refer to sampling schedule (page 21) for effluent characteristics, frequency and sample type.

### **Outfall 002 (Aerated Lagoon)**

Take samples at least two times per week for pH (standard units) and temperature (immersion stabilization) measurement. Refer to sampling schedule (page 21) for effluent characteristics, frequency and sample type. Grab samples should be taken at the weir in the discharge line. 24 hour continuous samples are taken by the Hach AWRS located near the weir. Flow measurements are obtained by the Magnetrol 345 flow meter located next to the Hach sampler.

### **Outfall 003 (Evaporator Condensate)**

No data due to non-usage at this period of time.

### **Outfall 995 (Non-Contact Cooling Water)**

Take a sample daily for temperature measurement using immersion stabilization. Take samples at least five days per week for pH (standard units) measurement. Take at least one sample per month for Dissolved Zinc and one for Recoverable Silver/Copper. Refer to sampling schedule (page 21) for effluent characteristics, frequency and sample type.

### **Refrigeration Water**

See page 11

## **Cockrell's Creek**

Monthly samples from Cockrell's Creek will be taken during the fishing season and periods of vessel maintenance (sandblasting and painting).

Sampling during vessel maintenance activities is performed during the period of maintenance. Surface "grab" samples will be taken during slack tide. See appendix A for the complete plan.

Cockrell's Creek general monthly sampling will be performed at a point 20 foot from each outfall (001, 002 and 995). See appendix B for the complete plan.

Refer to sampling schedule for effluent characteristics, frequency and sample type

## **Record Keeping**

Records for all sampling activities will be maintained. The record will include: sampling date and time, location, test and sampler ID. In addition, a copy of the chain of custody report accompanying the samples will be maintained.

In addition, copies of the submitted Discharge Monitoring Reports (DMR) and all data, logs, field sampling benchsheets, and contract laboratory Certificates of Analysis used to compile the reports will be maintained.

## **General Procedures and Guidelines:**

1. Refrigerators must be kept at or less than 4 deg C
2. Refrigerator and any thermometer used for outfall temperature determination must be calibrated annually with a NIST traceable thermometer. All thermometer calibrations must be documented appropriately and in keeping with general permit guidelines.
3. Record keeping guidelines:
  - a. Sampling and analysis times are to be written on the sample
  - b. Sampler's initials are to be written on the sample
  - c. Records must be kept in ink
4. Use appropriate sample containers
5. Measure pH within 15 minutes of when the sample is taken
6. Equipment used for the collection and shipment of samples will be maintained on a daily basis as necessary.

7. The pH meter will be calibrated daily with three buffer solutions. These must either be fresh with each use or used within one week of dispensing from a stock solution. Dispensed buffers are to be kept in a clean capped container and labeled with the dispensing date. The pH electrode should be rinsed with distilled water and blotted dry between measurements. Alternatively, the electrode may be rinsed with the next measurement solution.
8. During measurement, the sample should be swirled gently. The SympHony meter will indicate "Ready" when a steady reading is achieved.
9. Always report the temperature at which the pH is measured.
10. Equipment will be calibrated on a routine basis as necessary. Calibration of thermometers; pH, salinity, flow and D.O. meters is to be performed according to the equipment manual instructions.

## REFRIGERATION WATER:

Per our water permit, the following lists details the procedures to be followed for refrigeration water sampling (Refer to "Other Requirements and Special Conditions") located as Part 2 on page 11 of 23 in the permit. Vessel logs which record dates and times of discharges must be maintained and made available for inspection upon request. Twice a month, we are required to sample the area of the Chesapeake Bay within the visible discharge plume before and after discharge for:

- 1) BOD<sub>5</sub>
- 2) Ammonia
- 3) pH
- 4) Temperature
- 5) Dissolved Oxygen
- 6) Salinity

The samples are to be grabbed at about a depth of between six to eight feet below the surface of the water.

Tests for pH, Temperature and Dissolved Oxygen are considered to be "field" tests and will be performed at the time of sampling or as soon as possible thereafter, by the sampler.

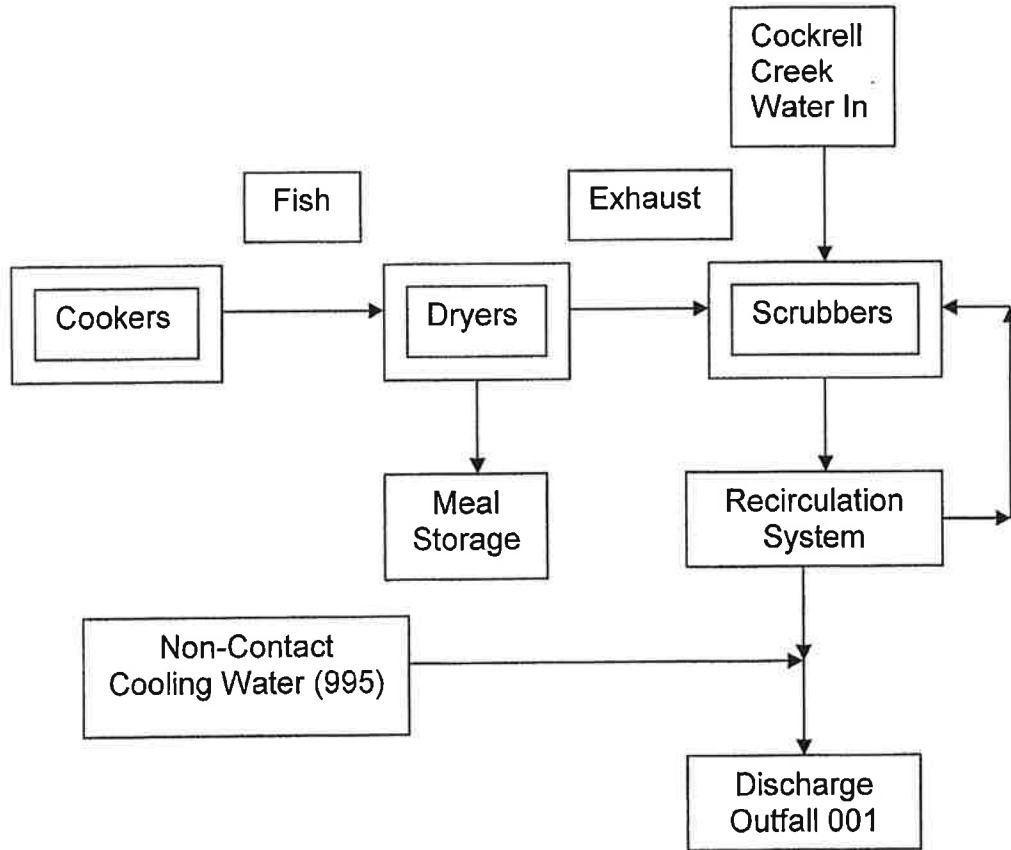
Tests for BOD<sub>5</sub>, Salinity and Ammonia will be performed by our contract lab. One sample should be collected for BOD<sub>5</sub> + Salinity and preserved at 4 deg C only. One sample should be collected for Ammonia, stabilized with H<sub>2</sub>SO<sub>4</sub> (pH < 2) and preserved at 4 deg C. As such, for each vessel/trip a total of 4 samples will be collected (i.e. 2 before and 2 after discharge). Each set of samples should be taken concurrently.



# WASTEWATER TREATMENT

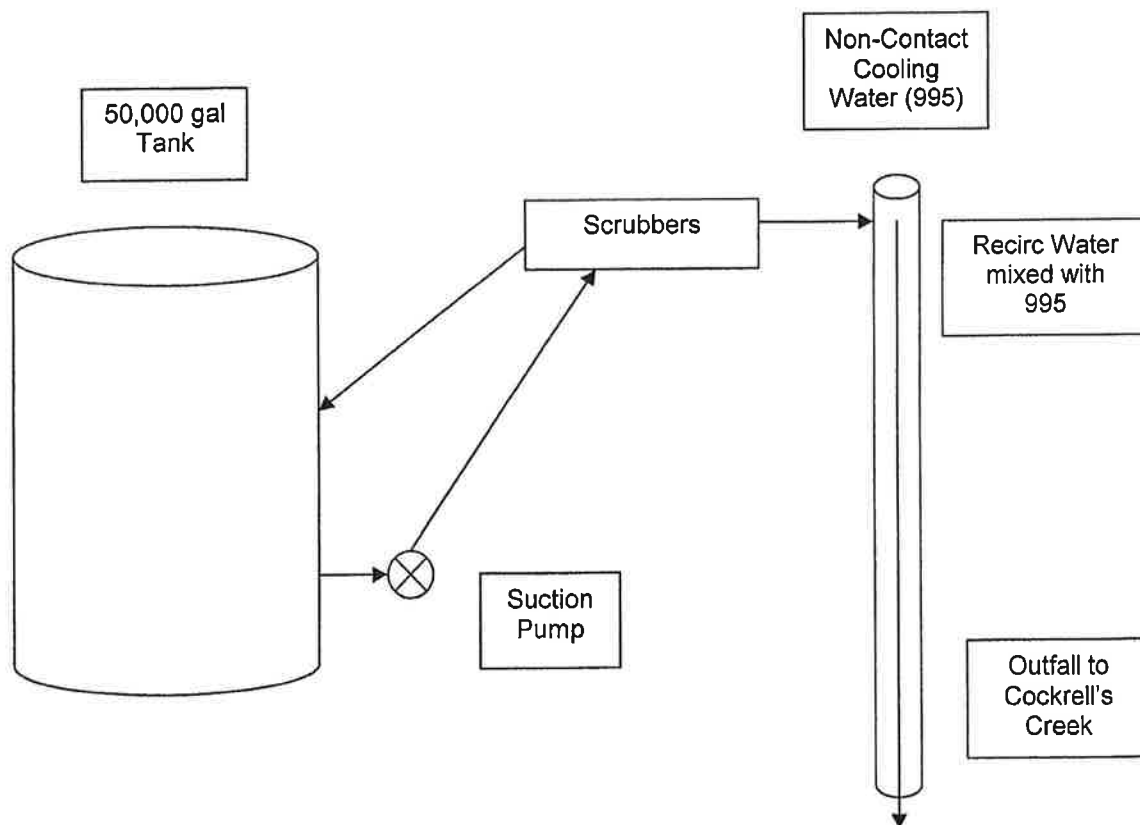
## *Outfall Descriptions*

### Outfall 001



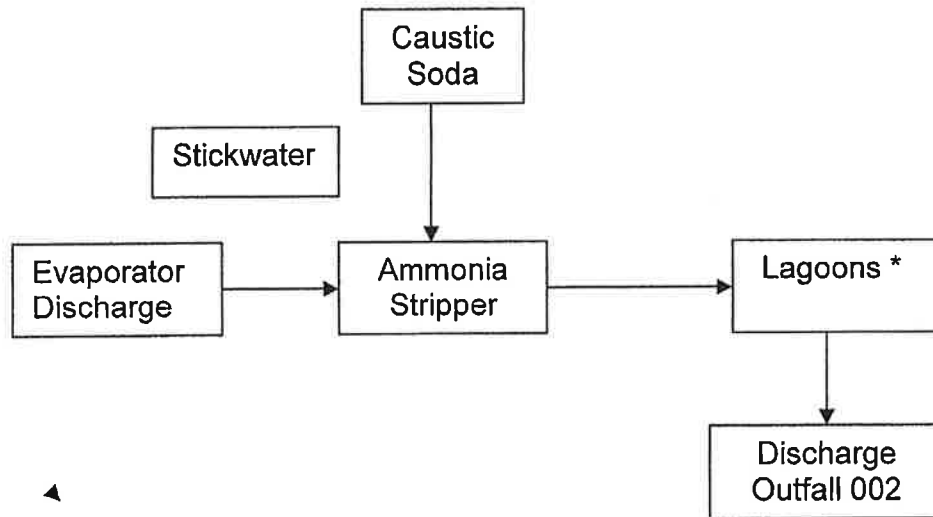
Raw fish are conveyed to the cookers and then sent on to dryers. Exhaust from the dryers is vented to the scrubbers, where it is washed to remove particulate matter. This water is recirculated. On an intermittent basis, the water is mixed with non-contact cooling water and is discharged to outfall 001, located at the offshore fish pump dock. The Engineering Report that was submitted as required by the Consent Order dated 9/6/06 by referenced to provide details on the recirculation system. Upon approval by VDEQ, the Report will be incorporated into this O&M Manual as an appendix.

Effluent from the 001 outfall enters Cockrell's Creek through a 180 foot diffuser next to the dock. VPDES grab samples are taken at a spigot on the discharge pipe located on the dock. 24 Hour Composite samples are taken from a Hach AWRS autosampler also located on the dock. Flow measuring is estimated based on pump curve.



Schematic of Scrubber Recirculation System  
Arrows indicate water flow

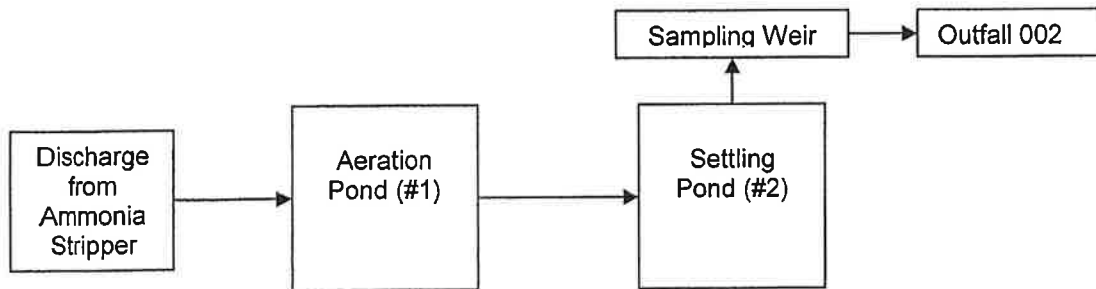
## Outfall 002



Stickwater, generated after the oil is removed from the press liquor is concentrated in evaporators. The solids are recovered. The spent liquid is processed to remove ammonia and then sent to the lagoons. At the lagoons this material is further processed to remove BOD and residual Nitrogen. The water is discharged to Cockrell's Creek through a 180 ft. diffuser.

\* A detailed description of the construction and operation of the lagoons can be found on page 15.

## Outfall 002 – Lagoon Detail



The evaporator condensate waste treatment system is composed of the ammonia stripper and two ponds, or cells. Each cell has the following characteristics:

Size: 220' X 220' Bottom Dimensions  
3:1 Side Slope  
6.5 feet depth

Volume: 373,000 Cu. Ft.  
2.8 Million Gallons

Detention: 14 Days

Berm: Slurry wall composed of clay, sand and bentonite

Aprons: 1

Air Lines: 3

Treatment: Cell #1  
BI-CHEM DC 1003 FG (Metabolism of fats, oils and greases)  
Cell #2  
BI-CHEM LC 1010N 20xS (Nitrosomas and Nitrobacter)

Sodium Bicarbonate (pH stabilization)

Note: Amounts added are dependant on fish processing rate. See Appendix E for product descriptions.

Sampling: At the sampling weir there is a 24 hour continuous sampler. Appropriate samples are gathered here. Other samples are "grabbed" from the weir

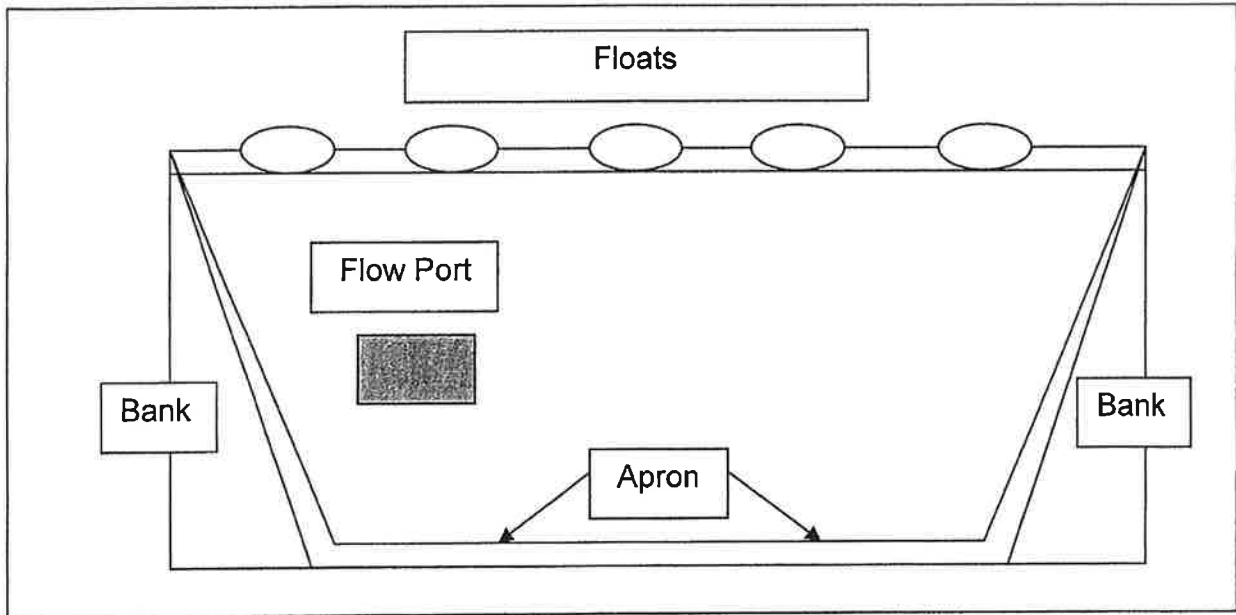
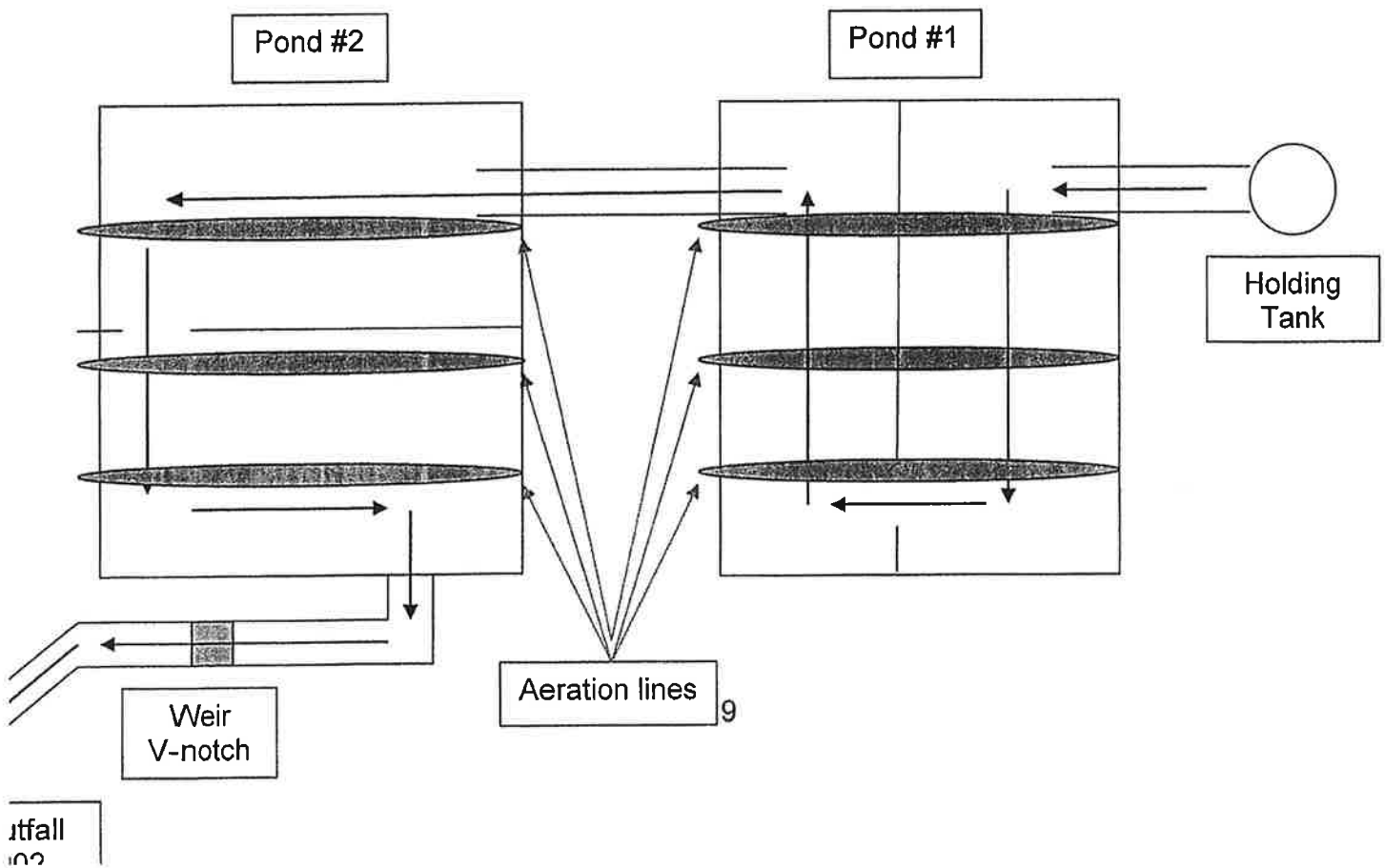
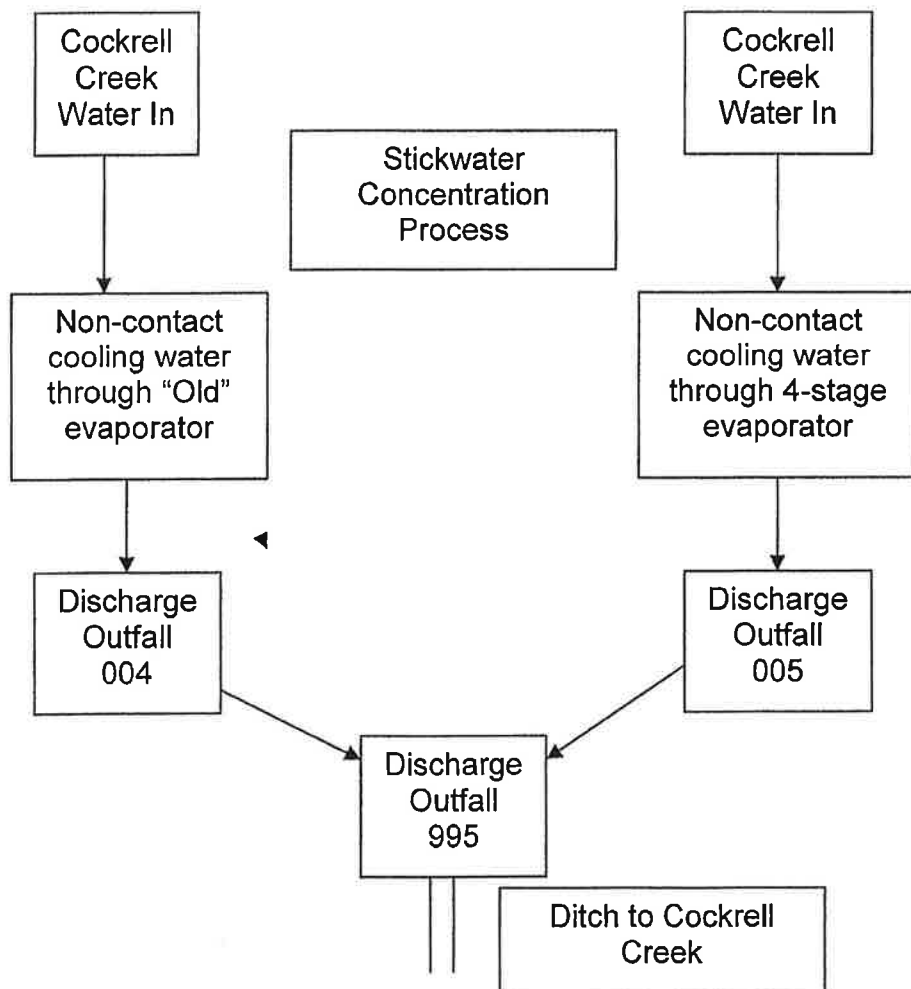


Fig. 2 Schematic showing operational detail of the pond aprons

Fig.3 Schematic of lagoons. Black arrows indicate water flow



### Outfall 995



Fish solubles are generated from concentration of stickwater in the evaporators. Solubles may be concentrated to different levels depending on their intended use. As such, either the "old" evaporator or the newer 4 stage evaporator may be employed. The non-contact cooling waters from both evaporators are directed to the same ditch, which is designated outfall 995.

At the terminus of ditch 995 there is a 24 hour continuous sampler. Appropriate samples are gathered here. Other samples are "grabbed" from the ditch.

## Stormwater Discharge and Diked Area

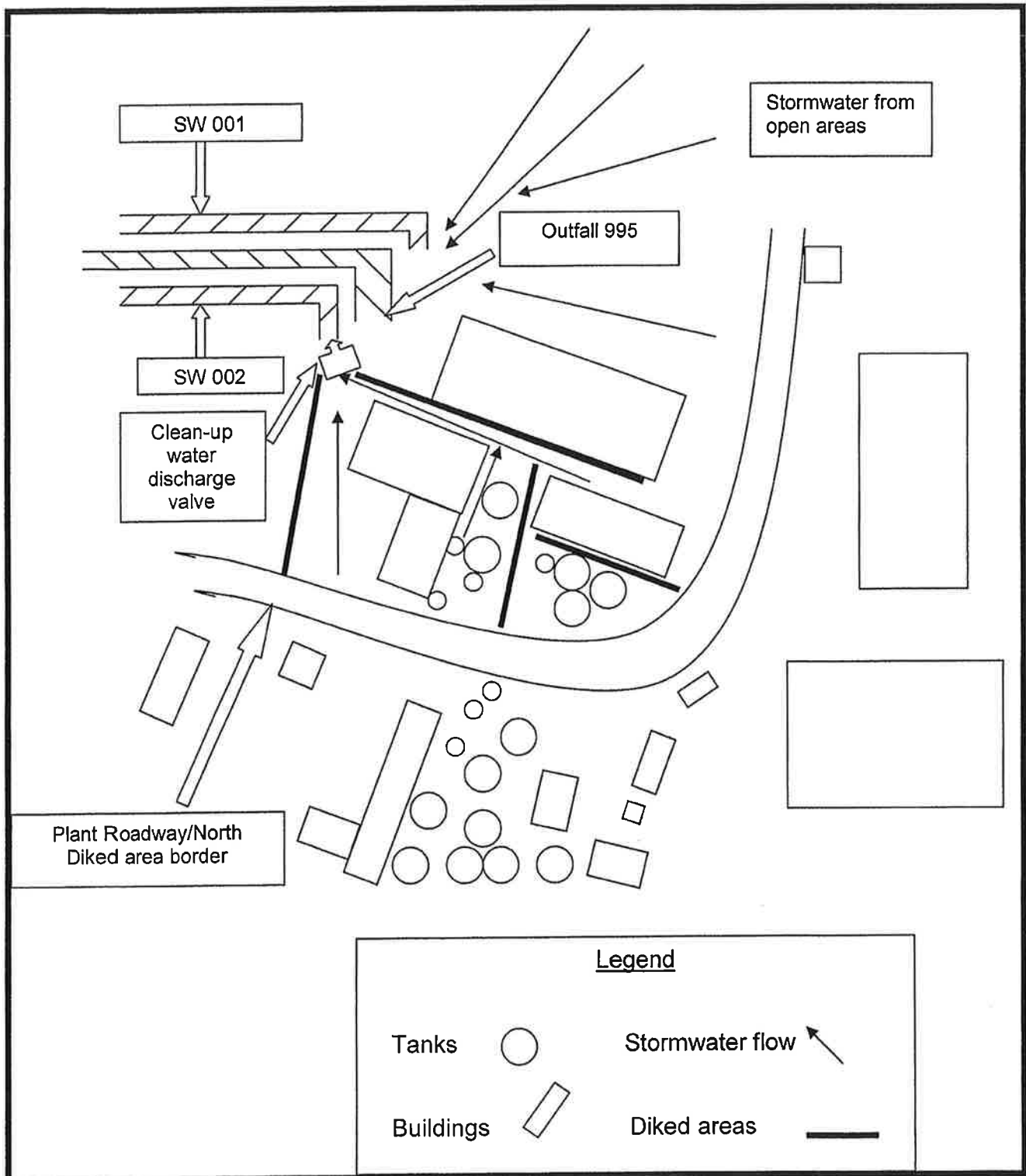


Fig. 4 Schematic showing approximate location of diked areas

Stormwater from open and parking areas on the North side of the plant is collected and diverted through a series of underground pipes to a trench. This trench empties into Cockrell's Creek via Stormwater Outfall 001 (SW 001).

Clean-up water is channeled via a diking system composed of brick buildings and concrete walls. The plant roadway is raised to the height of these walls and serves as the lower boundary of the diked area. The diked area clean-up water is funneled to a series of trenches in this area and is secured by a closed discharge valve. In the unlikely event that this valve would be opened, flow would enter Cockrell's Creek via Stormwater Outfall 002 (SW 002). See the "Facility Clean-up and Wash Down" section of this manual for further details.

**Note:** Discharge of stormwater is performed in compliance with our "Stormwater General Permit" (VAR051211)



## ***Wastewater Treatment Plant Maintenance***

### **Outfall 001**

There is no normal maintenance required for this outfall, with the exception of the Hach/Sigma automatic sampler which is service/calibrated annually by the Advanced Control Tech., Inc (ACT).

### **Outfall 002**

During the operational season, the lagoons are maintained daily by the addition of sodium bicarbonate and nitrifying bacteria. These are applied manually. The amounts added are dictated by the level of current plant operations. The aerators are maintained as needed and according to the Aeromix maintenance manual on file.

When diagnostic tests indicate that the ponds are becoming anaerobic, bottom sludge will be removed. A contained sludge holding area is located to the southeast of the ponds. Once dried, the sludge will be applied to our net facility and airfield. A description of the lagoon drawdown procedure is detailed in appendix C.

The Hach/Sigma automatic sampler is serviced and calibrated annually by the Advanced Control Tech., Inc (ACT).

In the event of a power failure a back-up generator will automatically provide electricity to the aerators. Details of the generator are provided on page 24.

A description of, and maintenance for, the ammonia stripper can be found on the next page.

### **Outfall 995**

The American Sigma automatic sampler is serviced and calibrated yearly by Advanced Control Technology (ACT).

## ***Back-up generator***

A back-up generator, manufactured by Generac Power Systems, Inc. (model: QT 5.4L 100kW) is located in the storage shed which is situated near the outflow valve for pond 2 of the lagoons. In the event of a utility power failure, the unit will automatically turn on and power the pond aerators. The Owner's Manual is kept on file and contains details for the unit's operation and maintenance. The generator has a DATA label that contains important information pertinent to the unit. This label has been reproduced and is included as Appendix G.

Specifications for the unit may be found on page 6-1 of the owner's Manual.

Maintenance instructions are listed in chapter 10 of the manual. Maintenance is divided into 1) items performed by authorized service facilities (see contact information in section 1-3) and 2) items which can be performed by the owner/operator. A Service Schedule is provided in chapter 11.

The following items are listed under maintenance that owner/operator can perform:

- Check Engine Oil Level
- Check Battery
- Exercise System
- Inspect Cooling System
- Check Engine Coolant Level
- Perform Visual Inspection
- Inspect Exhaust System
- Check Fan Belt
- Inspect Engine Governor
- Changing Engine Oil
- Changing Engine Air Cleaner
- Spark Plugs
- Coolant Change
- Cleaning the Generator
- Battery Maintenance and Replacement

A copy of the service schedule, as well as a log to record hours of operation is attached to the unit and included in Appendix G.

## ***Ammonia Stripper Description and Maintenance***

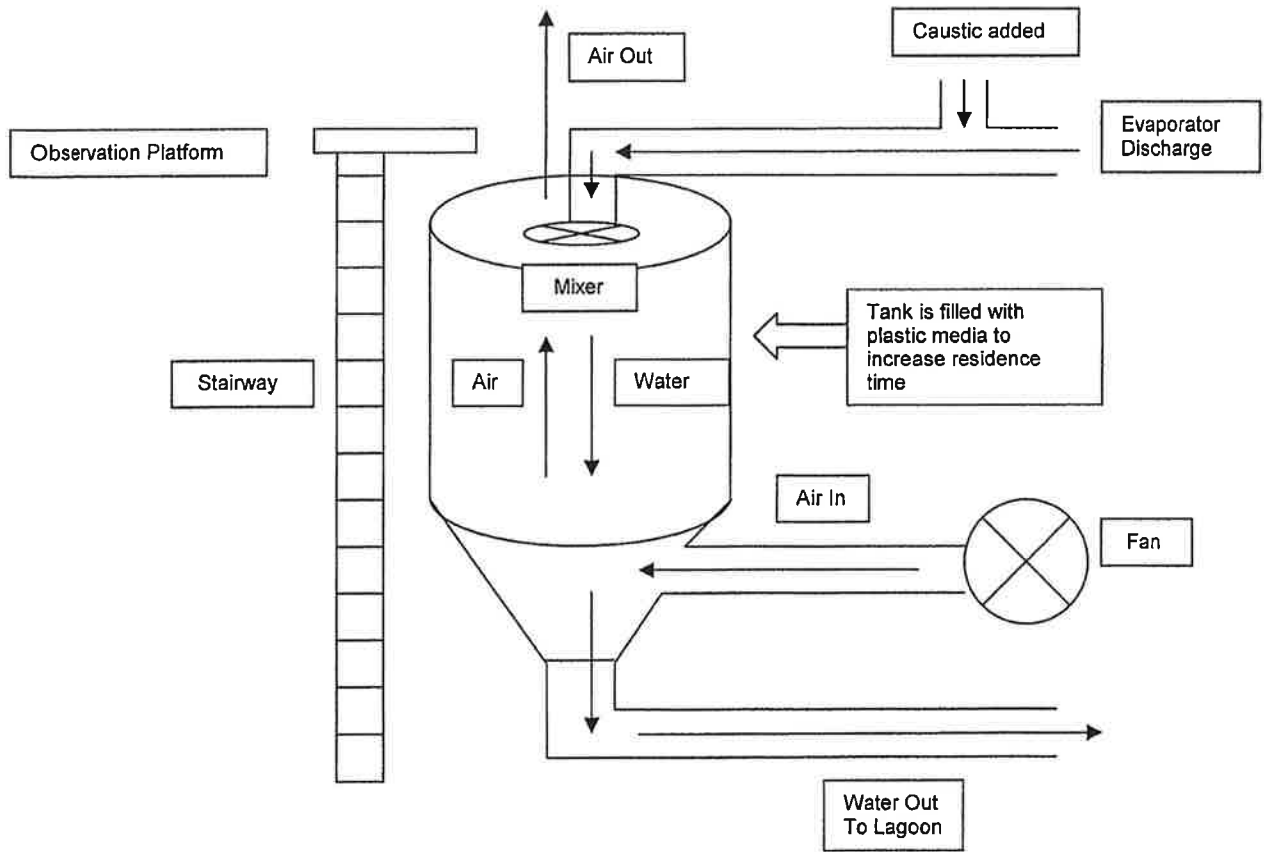


Fig. 5 Schematic showing operational details of the Ammonia Stripper

The Ammonia Stripper is composed of the parts shown in Fig 5. Caustic soda is added to the water, which was separated from the solids in the evaporator. The solution is allowed to react in a vessel (approx 10' X 25') filled with a plastic media. Air is introduced to the vessel by a fan. The water is neutralized with acid and then released to the lagoon.

Maintenance of the unit includes: lubrication of the fan motor and mixer, checking the level of the caustic tank and visual inspection of the process from the observation platform.

The operation of Stripper is automatically controlled. The components of this system are described in the next section.

## ***Ammonia Stripper Controller Description, Components and Maintenance***

The purpose of the Ammonia Stripper Controllers and ancillary equipment is to monitor and meter the addition of caustic soda and sulfuric acid to the intermediate and final waste streams. There are two complete systems; composed of a WalChem Controller, a WalChem pH electrode and a ProMinent Metering Pump. One system controls the addition of caustic soda to the incoming stream to aid in ammonia removal. The second controls the addition of sulfuric acid to the "stripped" stream in order to neutralize it before being sent to the lagoon.

### **WalChem WPH 350 Controllers**

The Walchem WPH305 Series controller is a panel mount pH/ORP controller which accepts input from a WAL electrode and based on preset pH values, actuates a ProMinent Sigma 3 Metering Pump. The complete manual is available at:  
<http://www.walchem.com/nav/CMLImage.aspx?CMID=0&Name=pnlmtmanual.pdf>

### **Maintenance**

The control module itself needs very little maintenance. Clean the outside of the controller enclosure with a damp cloth. Do not spray down the back side of the controller!

Check the cords and cables for damage.

### **Electrode Maintenance**

The PH electrode is supplied by WalChem. There are no specific maintenance instructions for the electrodes. The following procedure is appropriate for any electrode used.

The pH or ORP electrodes require periodic cleaning and calibration. These electrodes are like batteries and their voltage outputs will change with time even if they are not being used. After installation, the rate of change increases, and factors such as temperature, extremes of pH, abrasion and chemical attack will increase the required frequency of calibration. If the process solution contains oils, scale or other solids, the electrode surfaces will tend to coat, its response time will slow down and cleaning will be required.

The frequency of cleaning and calibrating will vary greatly depending upon the application, the factors listed above, as well as the accuracy of control you require. The best way to determine the optimum number of days between calibrations is to remove the electrode from the process periodically (weekly in clean water applications, daily in dirty or hot applications) and check its accuracy in a buffer solution. If using manual temperature compensation, remember to change the temperature from that of the process to that of the buffer. If the accuracy of the reading is within your required tolerances, and the speed of response is good, replace the electrode in the process. If not, clean the electrode and perform a two point calibration.

The method of cleaning the electrode will depend upon the coating, as well as the materials of construction of the electrode. Do not use a solvent that will attack the electrode! Care must be taken to avoid scratching the pH electrode's glass, as this will shorten its life. An ORP electrode's platinum surface may be cleaned with 600 grit silicon carbide paper, jewelers rouge or very fine steel wool. Oily coatings should be removed with a mild detergent or isopropyl alcohol. Hard scales such as calcium carbonate can usually be removed with a dilute hydrochloric acid solution. Soft coatings can be removed using a soft cloth or soft toothbrush.

A two point calibration should always be performed after cleaning the electrode. Because the electrode signal is so sensitive, the condition of the cable and connectors between the electrode, preamplifier and controller is critical. Make sure that all electrical connections stay clean and dry. Never splice the cable prior to preamplification. Replace the cable if there is any sign of damage.

### **Replacing the Fuses**

**CAUTION:** Disconnect power to the controller before opening rear panel! Remove the 5 bolts securing the rear panel to the controller. Remove the terminal blocks that run along the right side. Remove the rear panel. Locate the fuses on the circuit board on the right side of the controller enclosure. Gently remove the old fuse from its retaining clip and discard. Squeeze the clip together gently to ensure a tight fit. Press the new fuse into the clip, secure the front panel of the controller and return power to the unit.

**Warning:** Use of non-approved fuses can affect product safety approvals. Fuse ratings depend on controller power rating. Specifications are shown below. To insure product safety certifications are maintained, it is recommended that a Walchem fuse be used.

Controller Rating	F1	Walchem p/n	F2	Walchem p/n
115 VAC	5X20mm, 1/8A, 250V	102369	5X20mm, 10A, 125V	102432
230 VAC	5X20mm, 1/8A, 250V	102369	5X20mm, 5A, 250V	102370

### **ProMinent Sigma 3 Metering Pump**

The ProMinent Sigma/2 series is a motor driven metering pump with a mechanically actuated diaphragm-type liquid end. The model is S2CAHM07120, the complete manual is available at <http://www.prominent.cc/products/catalog/Sigma2.pdf>.

Maintenance involves replacement of worn parts in the liquid end. A spare parts kit is available as p/n 740325.6 from the manufacturer. See Appendix H for further details concerning the parts that comprise the Liquid End

### ***Ammonia Stripper Spare Parts List***

Part	# of spares needed	Location
Fan	1	Outside Storage
Fan Motor	1	Warehouse
Pump Assembly	1	Warehouse
Rotating Joint	1	Brick Office
Belts for fan	4	Store
pH Controller	1	Brick Office
Gear Box for Rotating Joint	1	Warehouse
Motors for Pumps	1	Warehouse
pH Probe	1	Brick Office
Chemical Pump	1	Maintenance Shop

## SAMPLING SCHEDULE

Outfall	Effluent Characteristics	Frequency	Sample Type
001	Temperature	1/day	Immersion stabilization
	pH (standard units)	3 / week	Grab
	BOD <sub>5</sub>	3 / week	24 – HC
	Total Suspended Solids	3 / week	24 – HC
	Ortho Phosphate	1 / week	24 - HC
	Nitrites	1 / week	24 – HC
	Oil and Grease	3 / week	Grab
	pH (standard units)	2 / month	24 – HC
	Total Phosphorus	1 / week	24 – HC
	Total Kjeldahl Nitrogen	1 / week	24 – HC
	Nitrates	1 / week	24 – HC
	Ammonia – Nitrogen	2 / month	24 – HC
	Cyanide	2 / month	Grab
002	Temperature	2 / week	Immersion stabilization
	pH (standard units)	2 / week	Grab
	BOD <sub>5</sub>	2 / month	24 – HC
	Total Suspended Solids	2 / month	24 – HC
	Ortho Phosphate	1 / week	24 – HC
	Nitrites	1 / week	24 – HC
	Oil and Grease	2 / month	Grab
	Total Phosphorus	1 / week	24 – HC
	Total Kjeldahl Nitrogen	1 / week	24 – HC
	Nitrates	1 / week	24 – HC
	Ammonia – Nitrogen	2 / month	24 - HC
	Fecal Coliforms	1 / week	Grab
	Enterococci	1 / week	Grab
	Acute Wet Limit	1 / quarter	24 - HC
003	Temperature	1 / day	Immersion stabilization
	pH (standard units)	2 / month	Grab
	BOD <sub>5</sub>	2 / month	24 – HC
	Total Suspended Solids	2 / month	24 – HC
	Oil and Grease	2 / month	Grab
	Ortho Phosphate	1 / week	24 - HC
	Nitrites	1 / week	24 – HC
	Total Phosphorus	1 / week	24 – HC
	Total Kjeldahl Nitrogen	1 / week	24 – HC
	Nitrates	1 / week	24 – HC
	Ammonia – Nitrogen	2 / month	24 – HC

	Dissolved Copper Dissolve Oxygen	1 / month 1 / day	Grab Grab
995	Temperature Total Dissolved Zinc Total Recoverable Copper Total Recoverable Silver pH (standard units)	1 / day 1 / month 1 / month  1 / month 5 / week	Immersion stabilization Grab 24 – HC  24 – HC Grab
Refrigeration water	BOD <sub>5</sub> Ammonia pH (standard units) Temperature Dissolved Oxygen Salinity	2 / month 2 / month 2 / month 2 / month 2 / month	Grabbed at about six to eight feet below the surface of the water
Cockrell Creek (During Fishing Season)	Ammonia – Nitrogen Temperature pH (standard units) Salinity	1 / month 1 / month 1 / month 1 / month	Grab Grab Grab Grab
Cockrell Creek (During Vessel Maintenance)	Total Pet. Hydrocarbons Dissolved Copper Dissolved Zinc Dissolved Lead Tributyltin	1 / month 1 / month 1 / month 1 / month 1 / month	Grab Grab Grab Grab Grab



## GROUND WATER MONITORING FOR AERATED LAGOONS

Six shallow water-table monitor wells are located in the area of the lagoons and are used to monitor potential ground water quality impacts in the event that the lagoon liner integrity is compromised. The system was designed by Swift Creek Environmental, Inc. A description of the design and the location of the wells is documented in Appendix F. The test parameters, minimum detection limits and units of measurement are included. Sampling technique, preservation and chain of custody reports will be conducted/maintained in accordance with normal VPDES sampling standards.

Ground water monitoring for this system will be conducted every 3 months with reports submitted by the 10<sup>th</sup> of the month following the quarter's end, to the VDEQ-PRO. The quarters are defined as "calendar" quarters, i.e. 1/1 – 3/31, 4/1 – 6/30, 7/1 – 9/30 and 10/1 – 12/31.

In the event ground water concentrations exceed established acceptable ground water concentrations, the VDEQ will be notified within 24-hours. A corrective action strategy will be formulated within 60 days and submitted to VDEQ for approval.

The acceptable groundwater concentrations for the plan were derived from 9 VAC 25-280-10 *et seq* *Groundwater Standards. Effective: February 12, 2004*. The parameters, minimum detection limits and established limits are summarized below.

Parameter	Static Water Level	pH**	Specific Conductivity	Temp.	DO	NH3-N**	FC	NO3-N **	Cl***	TOC***	P	Total Copper*	Total Silver*
Minimum	0.01	-	1.0	0.1	0.1	0.2	1.0	0.1	1.0	1.0	0.1	7.4	1.6
Maximum	Feet	SU	umh/cm	°C	mg/l	mg/l	MPN	mg/l	mg/l	mg/l	mg/l	µg/l	µg/l
Published	-	6.5 - 9	-	-	-	0.025	-	5	50	10.0	-	1000.0	None
Units													
*	Statewide Standard												
**	Standard Applicable to Coastal Plain Criteria												
***	Applicable to Coastal Plain												
-	No Standard or Criteria listed												

## APPENDIX A – VESSEL MAINTENANCE MONITORING

January 24, 2006

Ms. Denise Mosca  
Department of Environmental Quality  
4949-A Cox Road  
Glen Allen, VA 23060-6296  
Re: Revised Plan for Maintenance activities  
Dear Denise:

Our new VPDES permit (VA0003867) requires us to submit a plan for monitoring and analyzing the ambient water quality of the water column at both maintenance locations (Part 1 B 15). We submit the following revised plan and request that DEQ approve it as soon as possible, as maintenance activities are planned to commence in the latter part of January 2006. If scheduled maintenance is to commence before we receive formal DEQ approval of the plan, we will verbally notify DEQ the day before. We will sample in accordance with the plan as modified based on a letter received from Curtis Lindeman (via facsimile) dated January 13, 2006, concerning this matter. His letter indicated that the plan would be in compliance with the appropriate conditions once modified, as listed below.

We plan to sample adjacent to the moored vessel at either or both maintenance locations approved in the permit, at which spray painting and/or sandblasting maintenance is to occur. We propose to *take surface grab samples on the same day and subsequent to the maintenance activities. These samples will be taken monthly during the months when the above mentioned maintenance is to occur. They will be taken at slack tide and preserved in accordance with the accepted requirements of each specific sample. Analytical methods and analytical quantification levels will be in accordance with approved standards as shown on the attached table. Chain of custody records will be maintained. Results will be submitted with monthly DMRs as required.*

If we can be of any further assistance in this matter, please contact Ted Schultz at (804) 453-4211 X120.

Sincerely,

Lyell Jett  
General Manager

## APPENDIX B – COCKRELL'S CREEK MONITORING

January 24, 2006

Ms. Denise Mosca  
Department of Environmental Quality  
4949-A Cox Road  
Glen Allen, VA 23060-6296  
Re: Revised Plan for Permit Reference 1 B 4  
Dear Denise:

Our new VPDES permit (VA0003867) requires us to submit a plan for monitoring of Cockrell's Creek (1 B 4). We will sample in accordance with the plan as modified based on a letter received from Curtis Lindeman (via facsimile) dated January 13, 2006, concerning this matter. His letter indicated that the plan would be in compliance with the appropriate conditions once modified, as listed below. As such, the following plan is submitted for your review and approval.

*Cockrell's Creek monitoring will occur at three sampling locations situated 20 ft. from outfalls 001, 002 and 995 (labeled "1", "2" and "3", respectively) on the attached map.*

Sampling will commence at the end of the month in which we begin fishing, likely May 2006, and will occur on a monthly basis thereafter, during the fishing season. The permit requires sampling to commence within 30 days of the reissuance which would be January 9, 2006. Since the plant would not have processed within three weeks prior to or on that day, our first sampling will likely be in May. We have ceased fishing for the 2005 season. Therefore, the 30 day requirement will be fulfilled by the submittal of this letter. We will sample at a depth of one foot during a period of low slack tide. The sampling will be for the parameters of ammonia-nitrogen, temperature, pH and salinity. This sampling and the analysis performed will be done in accordance with the appropriate established standards. Quantification levels will be as documented in our permit. Results of this monitoring activity will be submitted on the month following the sampling, and with the normal DMR

If we can be of any further assistance in this matter, please contact Ted Schultz at (804) 453-4211 X120.

Sincerely,

Lyell Jett  
General Manager

## APPENDIX C - DRAWDOWN PROCEDURE FOR PONDS

1. Notify VDEQ
  - a. Prior to the beginning of drawdown with the approximate schedule.
  - b. At the end of the operation.
  - c. Provide a status report with submission of DMR
2. Test each pond at a depth of 3 feet – one sample for each pond on three consecutive days.
  - a. TSS – should not exceed 50 mg/l
  - b. BOD<sub>5</sub> – should not exceed approximately 50 mg/l (estimated)
  - c. Ammonia – should not exceed 38 mg/L
3. When everything passes the above limits,
  - a. Connect the suction to a float system, or similar, so the water is drawn from just below the surface and remains at least one foot above the sludge.
  - b. Discharge rate must not exceed 2.0 MGD. If the 2.0 MGD limit is exceeded, 24-HC must be sampled and analyzed for BOD<sub>5</sub>, TSS and Ammonia.
  - c. Discharge to creek by pumping from Pond 2 only, with suction in the vicinity of the current discharge pipe.
  - d. Concurrent with the discharge to the creek, pump from Pond 1 (cell 2) to Pond 2 (cell 3) so that Pond 1 water goes through both cells in Pond 2, before discharge to the creek.
  - e. Draw each pond down to a minimum of three feet. More than three feet is desirable, however, there must be a minimum of one foot of water (TSS<50 mg/l) remaining above the sludge. If the water level in any pond needs to be lowered below the one-foot-above-sludge requirement, the water must be pumped to the other pond.
4. During the drawdown operations
  - a. Inspect the ponds regularly and document each inspection in a log
  - b. Visually access the discharge to the creek
  - c. Should the visual exam of the discharge indicate a problem, the discharge must cease immediately and VDEQ must be notified immediately
  - d. One 24 hour continuous sample must be obtained each week during the drawdown operations. Sampling must occur during the discharge
    - i. Analyze for BOD, TSS and Ammonia
    - ii. Ask the lab to perform TSS ASAP and report results by phone ASAP
    - iii. If TSS exceeds 50 mg/l
      1. Notify VDEQ

2. Consider halting operations, depending on the amount by which TSS exceeds 50 mg/l
3. Daily 24 hour continuous sampling is required
  - e. At least one 24 hour continuous sample for BOD, TSS and Ammonia must be analyzed during the last 6 inches of drawdown
5. When ponds have been drawn down to the acceptable level, repairs can commence.
6. Prepare the DMR normally and send a status report.

## APPENDIX D – BMP CHECKLIST

Item	Description	Acceptable	Not Acceptable	Not Applicable
1	Vessels with holding tanks - Sanitary waste from vessels disposed of properly			
2	Vessels without holding tanks - Sanitary waste from vessels disposed of properly			
3	Yard cleaned to prevent debris from entering receiving waters			
4	Docks cleaned to prevent materials into receiving waters			
5	Controls in use during spray painting/sandblasting to prevent over spray/dust from falling into receiving waters			
6	Fixed/floating platforms used when working at water level			
7	Dust and overspray controlled when blasting/painting in yard			
8	Paint solids collected and properly disposed during paint removal activities			
9	Shipboard cooling water and process water segregated from spent abrasive and paint water			
10	Cleaning procedures employed to prevent waste materials introduction into storm drainage system			
11	Sediment traps in storm water drainage system(s) inspected and cleaned (if necessary). Log books updated.			
12	Oil, grease or fuel spills prevented from reaching State waters			
13	Drip pans used for oil or oily waste transfer activities			
14	Oil contaminated materials removed from marine repair area promptly			
15	SPCC/Oil Discharge Contingency Plan on file and maintained current and followed if necessary			
16	Chemicals, paints, oils, solvents, acids, caustic solutions and waste materials stored appropriately to prevent entry into State waters or groundwater			
Item	Description	Acceptable	Not Acceptable	Not Applicable
17	Metal finishing chemical solution, caustic wash and rinse-water tanks stored so as to prevent introduction of spills into State waters			

- 18 Paint mixing at locations and conditions  
to prevent spill discharge into State  
waters
- 19 Protective devices and/or controlled  
areas employed during paint mixing and  
solvent transfer; to prevent spillage from  
reaching State waters
- 20 Paint and solvent spills prevented from  
reaching drains with subsequent  
discharge to State waters
- 21 Paint storage kept to a minimum  
Trash receptacles provided and routinely  
emptied on each pier and onboard each  
vessel
- 22 Connectors, valves, pipes, hoses and  
soil chutes carrying wastewater are leak  
free. Soil chutes and hose connections  
to vessels to receiving lines/containers  
are leak free
- 23 Spent abrasives, paint residues and  
other materials removed from marine  
repair area prior to hose testing
- 24 Floatable and low-density waste  
removed from marine repair area
- 25 Bilge and ballast treated before  
discharge or if untreated, discharged  
according to effluent limitation
- 26 Hauled vessels are beyond the normal  
high tidal zone. In the event of overhang  
during abnormally high tides exterior  
abrasive/water blasting discontinued.  
Exterior work on vessels is performed in  
marine repair area unless appropriate  
precautions are take to prevent  
discharge into State waters
- 27 Marine repair area is cleaned regardless  
of docking and launching time intervals
- 28 Innovative measures for collecting  
abrasives submitted
- 29 Material cleaned up in vicinity of marine  
repair area before incoming tide
- 30 Gray water discharged in accordance  
with permit limits
- 31

Comments:

Date of Inspection:

Inspected by:



## APPENDIX E – BIOAUGMENTATION PRODUCTS

### BI-CHEM® 1003FG

**Industrial fats, oils and grease - new and improved formulation with Patented BioS™ 3112.**

BI-CHEM® 1003FG with BioS™ 3112 is an advanced, unique biological treatment designed to degrade food processing wastewater. It has unique capabilities for the metabolism of fats, oils and greases (FOG) of animal and plant origin.

BioS™ 3112 is Novozymes' patented *Bacillus* strain that adds a novel, stable, spore-forming bacteria to 1003FG.

### BI-CHEM® 1010N

#### **Nitrification.**

BI-CHEM® 1010N is a liquid blend of the nitrifying strains *Nitrosomonas* and *Nitrobacter*. The product is applicable to aerobic treatment systems and has successfully established nitrification in activated sludge, lagoon and retrofitted physical/chemical unit processes in municipalities, landfills, steel plants, refineries, food processors/renderers, chemical producers and Superfund sites

## **APPENDIX F – SWIFT CREEK ENVIRONMENTAL, INC GROUND WATER MONITORING PROPOSAL**

May 8, 2006  
Project #06-012

Mr. Lyell Jett  
Omega Protein  
P.O. Box 175  
Reedville, Virginia 22801

Re: VPDES Permit No. VA0003867 - Revision II of Proposed Ground Water Monitoring Strategy for aerated lagoons, Omega Protein, Reedville, Virginia

Dear Mr. Jett:

Based on our discussions with Ms. Denise Mosca of the VDEQ and per the VPDES Permit No. VA0003867, page 21 of 23 section 25b, a ground water monitoring strategy for monitoring potential ground water quality impacts was selected as the most optimal methodology in complying with statutory requirements. This letter serves as a revision to the proposed protocols in our draft submissions dated, February 23, 2006 and April 11, 2006.

Based on the size of the lagoon(s), Swift Creek Environmental, Inc., proposes installing six, shallow water table aquifer monitor wells. Four of the monitor wells will be placed on the downgradient side of the lagoon(s), 10 to 20 feet south and southwest from the toe of the lagoon(s) berm. The fifth monitor well will be placed on the up gradient side of the lagoon(s) 10 to 20 feet north, northeast from the toe of the lagoon(s) berm. The final and sixth monitor well will be placed 200 to 250 feet upgradient of the lagoon(s) (north-northeast), which will be over 650 feet from Cockrell Creek. This well will be utilized as the bench well. It's location is to insure that potential tidal influences will be negligible. The proposed location of the monitor wells are depicted on the attached Proposed Monitor Well Location Map - Figure 1. The actual location of the monitor wells should be field determined by a Virginia Professional Geologist prior to their installation. The temporary lagoon is not no longer used and was in service briefly in 2005 as a temporary staging area while the functional lagoon(s) were cleaned in 2005. This information was documented and was submitted to the VDEQ. If the VDEQ desires the two proposed wells on the south side of the lagoon(s) be relocated south of the temporary holding area, this can be accomplished. However, it is our professional opinion that the placement of the monitor wells nearer to the toe of the lagoon(s) will provide more representative data for determining lagoon(s) integrity.

To insure representative ground water samples are collected, the monitor wells should be installed a minimum of 10 feet into the surficial water table aquifer if possible. Due to land surface features, access to the lagoon(s) via truck mounted drill rig may be inhibited and as such, some of the monitor wells may have to be installed with hand auger technology. The possibility of "running sands" may limit the vertical depths of some of the wells where access is limited. The construction of the monitor wells should include, 2-inch diameter, schedule 40, .10 slot PVC screen extending from 2 to 3 feet above static water level to 5 to 7 feet below static water level. The casing should be constructed of 2-inch diameter, schedule 40, PVC and should extend to 2 feet above the ground surface. Upon monitor installation, the annular space should be filled .2 gravel pack to 2 feet above the monitor well screen, followed by a 2 foot bentonite seal. The remaining annular space should then be grouted to the surface. To complete the monitor wells, locking caps and locks should be secured and a steel stick-up manways should be installed with concrete.

Upon monitor well installation, the monitor wells should be surveyed for the collection of future ground water flow data. During monitor well installation, soil samples should be collected for soil profiles and the data be presented on the boring logs/monitor well diagrams.

Upon VDEQ acceptance of the protocols outlined in this letter, ground water monitoring of the 6 monitor wells should commence. Ground water samples should be collected following EPA sampling protocols and chain of custody procedures on a quarterly basis. The ground water samples should be transported to and analyzed by a Virginia approved analytical testing laboratory for the parameters listed on Tables 1 and 2. Upon receipt of the analytical data, a ground water monitoring report written by a licensed professional geologist/engineer should be prepared and submitted to the VDEQ on the 10<sup>th</sup> day after the ending quarter. The report should present the field findings and analytical results, along with hydrological information and any pertinent recommendations and conclusions.

TABLE 1. Ground Water Parameters						
	Static Water Levels field data	pH field data	Specific Cond. field data	Temperature field data	Dissolved Oxygen field data	Ammonia
Minimum Detection Limits	0.01	-	1.0	0.1	0.1	0.2
Units	Feet	SU	umh/cm	Degrees Celsius	mg/l	mg/l
Note:Quarterly Reporting						

TABLE 2. Ground Water Parameters							
	Fecal Coliform	Nitrate	Chloride	TOC	Phosphorus	Total Copper	Total Silver
Minimum Detection Limits	1.0	0.1	1.0	1.0	0.1	7.4	1.6
Units	MPN	mg/l	mg/l	mg/l	mg/l	ug/l	ug/l
Note:Quarterly Reporting							

In the event ground water concentrations exceed established acceptable ground water concentrations, the VDEQ will be notified within 24-hours. A corrective action strategy will be formulated within 60 days and submitted to the VDEQ for approval.

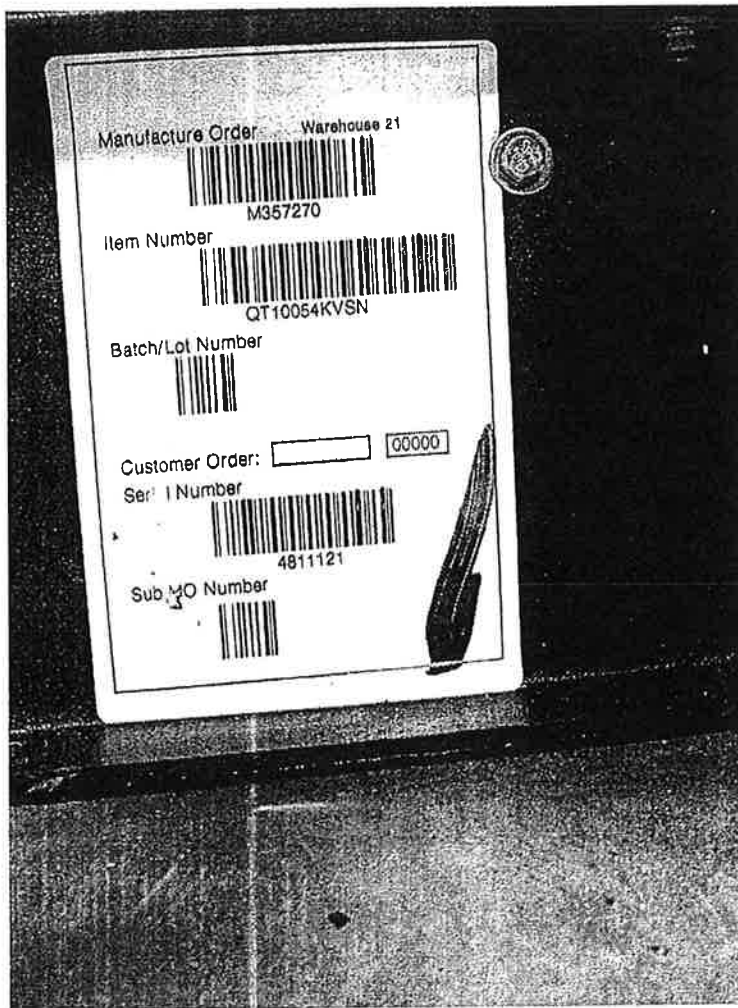
Once the proposed ground water monitoring program is accepted by the VDEQ, it should be implemented and incorporated into the requirements of VPDES Permit No. VA0003867. Should you have any questions regarding this letter, please contact me at 804.991.3213. Thank you for the opportunity to serve you.

Sincerely,  
B. Thomas Houghton, PG  
Principal

cc: Denise Mosca - VDEQ Piedmont Regional Office

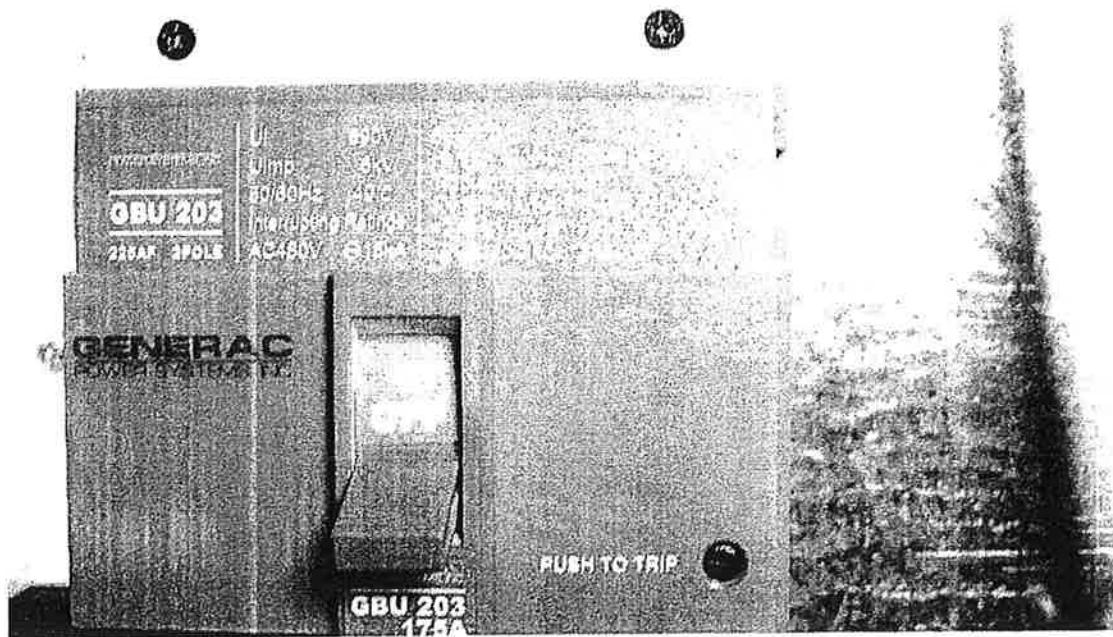
## **APPENDIX G – EMERGENCY GENERATOR DATA LABEL, USE LOG AND SERVICE SCHEDULE**

### **Identification Code**



Generator Identification Label. Note Item Number Code explained on page 2-1 of the Operator's Manual.

## Electrical Info on box near Power Switch



Misc. Power Supply information

## Generator Use Log

Dates of Use		Total Time of Operation (hrs)	Event that caused start-up	Initials
From	To			

## Generator Service Schedule

Standby Generator Sets Service Schedule											
Maintenance Tasks	Weekly	Monthly	Quarterly	Semi-Annually	Annually	Bi-Annually	Quarterly	Monthly	Weekly	Daily	Hourly
1. Check the oil level and change if necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Check the battery electrolyte level and adjust if necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Check the engine coolant level and adjust if necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Check the engine oil level and adjust if necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Check the battery water level and adjust if necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Check the engine oil level and adjust if necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Check the battery electrolyte level and adjust if necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Check the battery water level and adjust if necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Check the engine oil level and adjust if necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Standby Generator Sets Service Schedule									
Maintenance Task	Level 1 Daily (1 hr)	Level 2 Weekly (1 hr)	Level 3 Monthly (2 hr)	Level 4 Quarterly (2 hr)	Level 5 Semi-Annual (2 hr)	Level 6 Annual (2 hr)	Level 7 Biennial (2 hr)	Level 8 Triennial (2 hr)	Level 9 Quadrennial (2 hr)
10. Check the engine accessory drive belts and fan coupling devices if equipped for correct tension, cracks, wear, tracking, and damage. Replace as necessary.									
11. Check the engine valve clearance and adjust as necessary.									
12. Inspect the engine cooling fan drive belt for proper wear, cracks, holes, connections or disconnections. Replace as necessary.									
13. Test the engine and transfer switches using load bank. Correct and/or adjust as necessary.									
14. Inspect the transfer switch and generator switch for proper operation and correct connections or disconnections. Replace as necessary.									
15. Replace the transfer switch if necessary.									
16. Check position of fuel oil cocks.									
17. Check the level of fuel oil.									

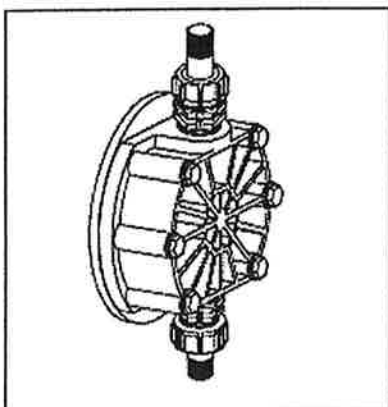
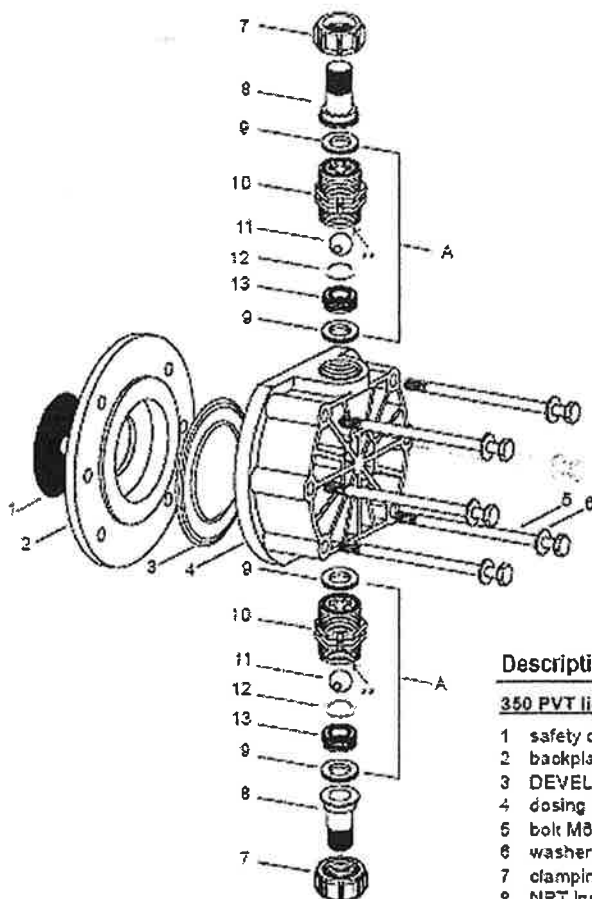


Steadily Generator Sets Service Schedule										
Item No.	Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9
1	Check oil level and change oil if necessary.									
2	Check water level and change water if necessary.									
3	Check battery level and charge battery if necessary.									
4	Check generator output and adjust if necessary.									
5	Check generator temperature and adjust if necessary.									
6	Check generator vibration and adjust if necessary.									
7	Check generator noise and adjust if necessary.									
8	Check generator fuel system and adjust if necessary.									
9	Check generator air intake and adjust if necessary.									
10	Check generator exhaust system and adjust if necessary.									
11	Check generator cooling system and adjust if necessary.									
12	Check generator lubrication system and adjust if necessary.									
13	Check generator safety system and adjust if necessary.									
14	Check generator control system and adjust if necessary.									
15	Check generator overall condition and adjust if necessary.									

## APPENDIX H – ProMinent Sigma 2 Components and Spare Parts

Sigma 350 PVT Liquid End Complete. For Pump Types: 07120, 07220, 04350

ProMinent®



Description	Qty.	Part No.
<b>350 PVT liquid end complete</b>	<b>1</b>	<b>792756.3</b>
1 safety diaphragm .....	1	792474.9
2 backplate .....	1	790123.4
3 DEVELOPAN diaphragm .....	1	792499.2
4 dosing head 350 PVDF .....	1	790212.5
5 bolt M8 x 90 .....	6	489187.2
6 washer .....	6	482229.8
7 clamping nut DN25 PVDF .....	2	359915.7
8 NPT Insert 1" PVDF (04350) or .....	2	7368944.8
9 NPT Insert 3/4" PVDF (07120, 07220) ...	2	7359845.5
** indicates location of spring if needed		
A valve cpl. DN25 PVT .....	*2	740615.0
9 cover ring DN25 .....	2	483989.8
10 valve body DN25 PVDF .....	1	740520.2
11 valve ball 25mm Duran .....	1	404217.2
12 ball seat disc DN25 PTFE Sigma ....	1	792510.0
13 ball seat bushing DN25 PVDF .....	1	740539.2
* Sigma valves complete are used as both suction and discharge valves. Quantities reflect # of components in each valve.		
<b>Spare Parts Kit</b>	<b>1</b>	<b>740325.6</b>
A valve cpl. DN25 PVT .....	2	740615.0
3 DEVELOPAN diaphragm .....	1	792499.2
9 cover ring DN25 .....	4	483989.8
11 valve ball 25mm Duran .....	2	404217.2
12 ball seat disc DN25 PTFE Sigma ....	2	792510.0

#SIGEPVT-1/07NA

**Omega VDPES Permit VA0003867 (Attachment A)**



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

### PIEDMONT REGIONAL OFFICE

4949-A Cox Road, Glen Allen, Virginia 23060

(804) 527-5020 Fax (804) 527-5106

[www.deq.virginia.gov](http://www.deq.virginia.gov)

L. Preston Bryant, Jr.  
Secretary of Natural Resources

David K. Paylor  
Director

Gerard Seeley, Jr.  
Regional Director

AUG 28 2007

Mr. Lyell Jett  
General Manager  
Omega Protein  
P.O. Box 175  
Reedville, Va. 22539

RE: VPDES Permit No. VA0003867  
Omega Protein

Dear Mr. Jett:

Enclosed please find new DMR forms for your individual permit with nutrient monitoring removed that is required under the nutrient general permit. Please discard the DMRs previously sent to you and insert these updated pages in your permit.

In accordance with the permit, you are required to submit monitoring reports to the Piedmont Regional Office. The reporting form which is enclosed supersedes any that you have received from this office and should be used from now on. You will be responsible for obtaining copies of the reporting form.

If you have any additional questions, please do not hesitate to contact us.

Sincerely,

A handwritten signature in black ink, appearing to read "Curtis J. Linderman".

Curtis J. Linderman, P.E.  
Water Permit Manager

cc: DEQ-OWPS  
EPA-Region III (3PW12)

Enclosures: DMR - Permit No. VA0003867

MITTEE NAME/ADDRESS(INCLUDE  
ILITY NAME/LOCATION IF DIFFERENT)

IE Omega Protein - Reedville  
RESS PO Box 175  
Reedville VA 22539  
ILITY 610 Menhaden Rd  
ATION

COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM(NPDES)  
DISCHARGE MONITORING REPORT(DMR)

VA0003867			001		
PERMIT NUMBER			DISCHARGE NUMBER		
MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY

FROM

TO

Industrial Major 08/22/2007

DEPT. OF ENVIRONMENTAL QUALITY  
(REGIONAL OFFICE)

Piedmont Regional Office  
4949-A Cox Road

Glen Allen VA 23060

NOTE: READ PERMIT AND GENERAL INSTRUCTIONS  
BEFORE COMPLETING THIS FORM.

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX.	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
1 FLOW	REPORTD				*****	*****	*****				
	REQRMNT	NL	NL	MGD	*****	*****	*****			CONT	EST
2 PH	REPORTD	*****	*****			*****					
	REQRMNT	*****	*****		6.0	*****	9.0	SU		3D/W	GRAB
3 BOD5	REPORTD				*****	*****	*****				
	REQRMNT	1700	3100	KG/D	*****	*****	*****			3D/W	24HC
4 TSS	REPORTD				*****	*****	*****				
	REQRMNT	650	1600	KG/D	*****	*****	*****			3D/W	24HC
5 CL2, TOTAL	REPORTD	*****	*****		*****						
	REQRMNT	*****	*****		*****	580	1200	UG/L		1/DAY	GRAB
6 PHOSPHORUS, TOTAL (AS P)	REPORTD		*****		*****		*****				
	REQRMNT	23	*****	KG/D	*****	2.0	*****	MG/L		1/W	24HC
7 CYANIDE, TOTAL (AS CN)	REPORTD	*****	*****		*****						
	REQRMNT	*****	*****		*****	96	110	UG/L		2/M	GRAB
8 AMMONIA, AS N	REPORTD	*****	*****		*****						
	REQRMNT	*****	*****		*****	NL	NL	MG/L		2/M	24HC

ADDITIONAL PERMIT REQUIREMENTS OR COMMENTS

WASTEWATER TYPASSES AND PERFLOWS	TOTAL OCCURRENCES	TOTAL FLOW(M.G.)	TOTAL BOD5(K.G.)	OPERATOR IN RESPONSIBLE CHARGE			DATE					
				TYPED OR PRINTED NAME	SIGNATURE	CERTIFICATE NO.	YEAR	MO.	DAY			
I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM OR USE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS TO THE BEST OF MY KNOWLEDGE AND BELIEF TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. & 1001 AND 33 U.S.C. & 1319. (Penalties under these statutes may include fines up to \$10,000 and/or maximum imprisonment of between 6 months and 5 years.)				PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT			TELEPHONE					
				TYPED OR PRINTED NAME	SIGNATURE		YEAR	MO.	DAY			

MITTEE NAME/ADDRESS(INCLUDE  
ILITY NAME/LOCATION IF DIFFERENT)

ME Omega Protein - Reedville  
DRESS PO Box 175  
Reedville VA 22539  
ILITY 610 Menhaden Rd  
CATION

COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM(NPDES)  
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		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
80 TEMPERATURE, WATER DEG. C)	REPORTD	*****	*****		*****	*****					
	REQRMNT	*****	*****		*****	*****	50	C		1/DAY	IS
00 OIL & GREASE	REPORTD				*****	*****	*****				
	REQRMNT	370	680	KG/D	*****	*****	*****			3D/W	GRAB
	REPORTD										
	REQRMNT									*****	
	REPORTD										
	REQRMNT									*****	
	REPORTD										
	REQRMNT									*****	
	REPORTD										
	REQRMNT									*****	
	REPORTD										
	REQRMNT									*****	
	REPORTD										
	REQRMNT									*****	

DITIONAL PERMIT REQUIREMENTS OR COMMENTS

BYPASSES AND VERFLOWS	TOTAL OCCURRENCES	TOTAL FLOW(M.G.)	TOTAL BOD5(K.G.)	OPERATOR IN RESPONSIBLE CHARGE			DATE			
CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE EPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION MITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM OR OSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION MITTED IS TO THE BEST OF MY KNOWLEDGE AND BELIEF TRUE, ACCURATE AND COMPLETE. AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, CLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 S.C. & 1001 AND 33 U.S.C. & 1319. (Penalties under these statutes may include es up to \$10,000 and/or maximum imprisonment of between 6 months and 5 years.)				TYPED OR PRINTED NAME	SIGNATURE	CERTIFICATE NO.	YEAR	MO.	DAY	
				PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT			TELEPHONE			
				TYPED OR PRINTED NAME	SIGNATURE			YEAR	MO.	DAY

MITTEE NAME/ADDRESS(INCLUDE  
ILITY NAME/LOCATION IF DIFFERENT)

ME Omega Protein - Reedville  
RESS PO Box 175  
Reedville VA 22539

ILITY  
ATION 610 Menhaden Rd

**COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM(NPDES)  
DISCHARGE MONITORING REPORT(DMR)**

VA0003867			002		
PERMIT NUMBER			DISCHARGE NUMBER		
MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY

FROM

TO

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**DEPT. OF ENVIRONMENTAL QUALITY  
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Glen Allen VA 23060

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		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
01 FLOW	REPORTD				*****	*****	*****				
	REQRMNT	NL	NL	MGD	*****	*****	*****			CONT	MEAS
02 PH	REPORTD	*****	*****			*****					
	REQRMNT	*****	*****		6.0	*****	9.0	SU		2D/W	GRAB
03 BOD5	REPORTD				*****	*****	*****				
	REQRMNT	470	840	KG/D	*****	*****	*****			2/M	24HC
04 TSS	REPORTD				*****	*****	*****				
	REQRMNT	160	410	KG/D	*****	*****	*****			2/M	24HC
06 COLIFORM, FECAL	REPORTD	*****	*****		*****		*****				
	REQRMNT	*****	*****		*****	NL	*****	N/CML		1/W	GRAB
12 PHOSPHORUS, TOTAL (AS )	REPORTD		*****		*****		*****				
	REQRMNT	NL	*****	KG/D	*****	NL	*****	MG/L		1/W	24HC
39 AMMONIA, AS N	REPORTD	*****	*****		*****						
	REQRMNT	*****	*****		*****	38	45	MG/L		2/M	24HC
30 TEMPERATURE, WATER (DEG. C)	REPORTD	*****	*****		*****						
	REQRMNT	*****	*****		*****	NL	NL	C		2D/W	IS

DITIONAL PERMIT REQUIREMENTS OR COMMENTS

YPASSES AND /ERFLOWS	TOTAL OCCURRENCES	TOTAL FLOW(M.G.)	TOTAL BOD5(K.G.)	OPERATOR IN RESPONSIBLE CHARGE			DATE			
CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM OR THESE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS TO THE BEST OF MY KNOWLEDGE AND BELIEF TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. & 1001 AND 33 U.S.C. & 1319. (Penalties under these statutes may include fines up to \$10,000 and/or maximum imprisonment of between 6 months and 5 years.)				TYPED OR PRINTED NAME		SIGNATURE	CERTIFICATE NO.	YEAR	MO.	DAY
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				TYPED OR PRINTED NAME		SIGNATURE		YEAR	MO.	DAY

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ATION 610 Menhaden Rd

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NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM(NPDES)  
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			TO		

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		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
10 ENTEROCOCCI	REPORTD	*****	*****		*****		*****				
	REQRMNT	*****	*****		*****	NL	*****	N/CML		1/W	GRAB
19 TOXICITY, FINAL, NOTE	REPORTD	*****	*****		*****	*****					
	REQRMNT	*****	*****		*****	*****	14	TU-A		1/3M	24HC
10 OIL & GREASE	REPORTD				*****	*****	*****				
	REQRMNT	25	46	KG/D	*****	*****	*****			2/M	GRAB
	REPORTD										
	REQRMNT									*****	
	REPORTD										
	REQRMNT									*****	
	REPORTD										
	REQRMNT									*****	
	REPORTD										
	REQRMNT									*****	
	REPORTD										
	REQRMNT									*****	

DITIONAL PERMIT REQUIREMENTS OR COMMENTS

YPASSES AND VERFLOWS	TOTAL OCCURRENCES	TOTAL FLOW(M.G.)	TOTAL BOD5(K.G.)	OPERATOR IN RESPONSIBLE CHARGE			DATE		
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				TYPED OR PRINTED NAME	SIGNATURE		YEAR	MO.	DAY



MITTEE NAME/ADDRESS(INCLUDE  
ILITY NAME/LOCATION IF DIFFERENT)

ME Omega Protein - Reedville  
RESS PO Box 175  
Reedville VA 22539  
ILITY 610 Menhaden Rd  
ATION

COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM(NPDES)  
DISCHARGE MONITORING REPORT(DMR)

VA0003867	003					
PERMIT NUMBER	DISCHARGE NUMBER					
MONITORING PERIOD						
YEAR	MO	DAY	TO	YEAR	MO	DAY

Industrial Major 08/22/2007

DEPT. OF ENVIRONMENTAL QUALITY  
(REGIONAL OFFICE)

Piedmont Regional Office  
4949-A Cox Road

Glen Allen VA 23060

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		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
1 FLOW	REPORTD				*****	*****	*****				
	REQRMNT	NL	NL	MGD	*****	*****	*****			CONT	EST
2 PH	REPORTD	*****	*****			*****					
	REQRMNT	*****	*****		6.0	*****	9.0	SU		2/M	GRAB
3 BOD5	REPORTD				*****	*****	*****				
	REQRMNT	4300	7700	KG/D	*****	*****	*****			2/M	24HC
4 TSS	REPORTD				*****	*****	*****				
	REQRMNT	110	280	KG/D	*****	*****	*****			2/M	24HC
7 DO	REPORTD	*****	*****				*****				
	REQRMNT	*****	*****		NL	NL	*****	MG/L		1/DAY	GRAB
12 PHOSPHORUS, TOTAL (AS )	REPORTD		*****		*****		*****				
	REQRMNT	3.0	*****	KG/D	*****	2.0	*****	MG/L		1/W	24HC
9 AMMONIA, AS N	REPORTD	*****	*****		*****						
	REQRMNT	*****	*****		*****	37	45	MG/L		2/M	24HC
0 TEMPERATURE, WATER DEG. C)	REPORTD	*****	*****		*****						
	REQRMNT	*****	*****		*****	NL	NL	C		1/DAY	IS

DITIONAL PERMIT REQUIREMENTS OR COMMENTS

BYPASSES AND OVERFLOWS	TOTAL OCCURRENCES	TOTAL FLOW(M.G.)	TOTAL BOD5(K.G.)	OPERATOR IN RESPONSIBLE CHARGE			DATE					
				TYPED OR PRINTED NAME	SIGNATURE	CERTIFICATE NO.	YEAR	MO.	DAY			
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PERMITTEE NAME/ADDRESS (INCLUDE  
CITY NAME/LOCATION IF DIFFERENT)

NAME Omega Protein - Reedville  
ADDRESS PO Box 175  
Reedville VA 22539  
CITY  
LOCATION 610 Menhaden Rd

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		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
2 COPPER, DISSOLVED (G/L AS CU)	REPORTD	*****	*****		*****						
	REQRMNT	*****	*****		*****	NL	NL	UG/L		1/M	GRAB
10 OIL & GREASE	REPORTD				*****	*****	*****				
	REQRMNT	430	780	KG/D	*****	*****	*****			2/M	GRAB
	REPORTD										
	REQRMNT									*****	
	REPORTD										
	REQRMNT									*****	
	REPORTD										
	REQRMNT									*****	
	REPORTD										
	REQRMNT									*****	
	REPORTD										
	REQRMNT									*****	
	REPORTD										
	REQRMNT									*****	

ADDITIONAL PERMIT REQUIREMENTS OR COMMENTS

WASTEWATER PASSES AND OVERFLOWS	TOTAL OCCURRENCES	TOTAL FLOW(M.G.)	TOTAL BOD5(K.G.)	OPERATOR IN RESPONSIBLE CHARGE			DATE					
				TYPED OR PRINTED NAME	SIGNATURE	CERTIFICATE NO.	YEAR	MO.	DAY			
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VA0003867			995			
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FROM

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		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS			
1 FLOW	REPORTD				*****	*****	*****				
	REQRMNT	NL	NL	MGD	*****	*****	*****			CONT	EST
2 PH	REPORTD	*****	*****			*****					
	REQRMNT	*****	*****		6.0	*****	9.0	SU		5D/W	GRAB
9 COPPER, TOTAL (AS CU)	REPORTD	*****	*****		*****						
	REQRMNT	*****	*****		*****	NL	NL	UG/L		1/M	24HC
10 TEMPERATURE, WATER (DEG. C)	REPORTD	*****	*****		*****						
	REQRMNT	*****	*****		*****	NL	45	C		1/DAY	IS
16 SILVER, TOTAL (COVERABLE)	REPORTD	*****	*****		*****						
	REQRMNT	*****	*****		*****	NL	NL	UG/L		1/M	24HC
18 ZINC, DISSOLVED (AS (UG/L)	REPORTD	*****	*****		*****						
	REQRMNT	*****	*****		*****	NL	NL	UG/L		1/M	GRAB
	REPORTD										
	REQRMNT									*****	
	REPORTD										
	REQRMNT									*****	

DITIONAL PERMIT REQUIREMENTS OR COMMENTS

BYPASSES AND OVERFLOWS	TOTAL OCCURRENCES	TOTAL FLOW(M.G.)	TOTAL BOD5(K.G.)	OPERATOR IN RESPONSIBLE CHARGE			DATE					
				TYPED OR PRINTED NAME	SIGNATURE	CERTIFICATE NO.	YEAR	MO.	DAY			
I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM OR USE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS TO THE BEST OF MY KNOWLEDGE AND BELIEF TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 V.S.C. & 1001 AND 33 U.S.C. & 1319. (Penalties under these statutes may include fines up to \$10,000 and/or maximum imprisonment of between 6 months and 5 years.)				PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT			TELEPHONE					
				TYPED OR PRINTED NAME	SIGNATURE		YEAR	MO.	DAY			

**THIS REPORT IS REQUIRED BY LAW (33 U. S. C. § 1318 40 CFR 122.60). FAILURE TO REPORT OR FAILURE TO REPORT TRUTHFULLY CAN RESULT IN CIVIL PENALTIES NOT TO EXCEED \$10,000 PER DAY OF VIOLATION; OR IN CRIMINAL PENALTIES NOT TO EXCEED \$25,000 PER DAY OF VIOLATION OR BY IMPRISONMENT FOR NOT MORE THAN FIVE YEARS, OR BOTH.**

### **GENERAL INSTRUCTIONS**

1. Complete this form in permanent ink or indelible pencil.
2. Be sure to enter the dates for the first and last day of the period covered by the report on the form in the space marked "Monitoring Period".
3. For those parameters where the "permit requirement" spaces are blank or a limitation appears, provide data in the "reported" spaces in accordance with your permit.
4. Enter the average and, if appropriate, maximum quantities and units in the "reported" spaces in the columns marked "Quantity or Loading".  
 $\text{KG/DAY} = \text{Concentration(mg/l)} \times \text{Flow(MGD)} \times 3.785$ .
5. Enter maximum, minimum, and/or average concentrations and units in the "reported" spaces in the columns marked "Quality or Concentration".
6. Enter the number of samples which do not comply with the maximum and /or minimum permit requirements in the "reported" space in the column marked "No. Ex.".
7. Enter the actual frequency of analysis for each parameter (number of times per day, week, month) in the "reported" space in the column marked "Frequency of Analysis".
8. Enter the actual type of sample collected for each parameter in the "reported" space in the column marked "Sample Type".
9. Enter additional required data or comments in the space marked "additional permit requirements or comments".
10. Record the number of bypasses during the month, the total flow in million gallons and BOD5 in kilograms in the proper columns in the section marked "Bypasses and Overflows".
11. The operator in responsible charge of the facility should review the form and sign in the space provided. If the plant is required to have a licensed operator, the operator's certificate number should be reported in the space provided.
12. The principal executive officer should then review the form and sign in the space provided and provide a telephone number where he/she can be reached.
13. You are required to sample at the frequency and type indicated in your permit.
14. Send the completed form to your Dept. of Environmental Quality Regional Office by the 10th of each month.
15. You are required to retain a copy of the report for your records.
16. Where violations of permit requirements are reported, attach a brief explanation in accordance with the permit requirements describing causes and corrective actions taken. Reference each violation by date.
17. If you have any questions, contact the Dept. of Environmental Quality Regional Office.

September 5, 2007

Mr. William Black, P.E.  
ENPRO  
525 North Sam Houston Parkway East, Suite 248  
Houston, Texas 77060-4019

Location: Northumberland County  
Registration No: 40278  
County-Plant ID No: 133-0011

Dear Mr. Black:

This letter is in response to Omega Protein's letter dated August 10, 2007 and subsequent electronic communications dated August 14, 2007 and September 3, 2007 regarding the proposed burning of fish oil in boilers BW1 and BW2 and Dryers 1R and 5. The proposed burning of fish oil to these emission units is considered to be a change in the method of operation as that term is used in the State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution as well as the Clean Air Act (CAA) and its implementing regulations. Therefore, the proposed project constitutes a modification for New Source Review (NSR) purposes.

Omega has suggested the proposed burning of fish oil be considered as an "exception" for the purposes of the NSR program based in part on the seasonal nature of its operations. However, please note that nowhere in the NSR modification definition, or in any other section of the NSR regulations are there exemptions for "exceptions" such as seasonal operations to the more normal operations of manufacturing or utilities as proposed by Omega Protein in your letter dated August 10, 2007 and your e-mail dated August 14, 2007 to Robert Weld.

Therefore, the next step would be to evaluate whether any net emission increases from the project exceed the relevant applicability levels in either the Prevention of Significant Deterioration (PSD) permit regulations or the minor NSR permit regulations.

Omega Protein has asserted in documents that PSD applicability will not be triggered since there are no significant emissions increases and past actual emissions will be equal or be greater than future actual emissions. However, Omega Protein is planning to increase hourly fish throughput at the plant which in turn increases associated emissions.

In order to establish that PSD applicability will not be triggered, the regulations require a calculation of baseline actual emissions to a projection of future actual emissions or a calculation of baseline actual emissions to future potential emissions. Omega Protein is responsible for performing these calculations and submitting them for review.

Please note that the future actuals projection period covers each of the next 5 years for each pollutant. Omega is required to show the projected future actual emissions for each pollutant that is PSD major for each of the next 5 years. Because the past actuals/future actuals applicability determination involves estimates of future business activity, this determination requires a substantial amount of documentation. The future estimates must be listed in available public documents or confidential business information on which the business decisions are based. Future estimates generated for the purposes of the applicability test are not acceptable. Omega will be required to submit the following when using the "future projected actual" situation: documentation to support the projected continuation of any trend throughout the 5 year projection period, existing available documentation demonstrating that the company has made representations to the public, to its shareholders, to its board or to its parent company, existing available documentation demonstrating that the company has established the expected business activity and projections for business purposes, and any copies of the company's filings with state and federal regulatory authorities.

In addition, the past actual emissions are based upon the most recent 24 consecutive month period. The regulations do allow calculating baseline actual emissions from time periods other than the most recent 5 years when the "other" time periods are more representative of normal operation. However, Omega's proposal to use the years 1998 or 2001 as more representative is contrary to the data showing that 10 of the last 12 years have had an annual fish catch of 500 million or less. Therefore, using data from 1998 or 2001 as "best year ever" as being representative is not appropriate.

In the event that PSD applicability is triggered, then Omega Protein would be subject to a full PSD review or Omega Protein would need to accept a federally enforceable emission limit of 39 tons per year for the affected pollutant(s) above its (their) past actual emissions.

Similarly, in order to evaluate minor NSR permitting applicability, the regulations require a comparison of the past actual emissions to the future potential emissions. Again, Omega Protein is responsible for performing these calculations and submitting them for review. In the event that minor NSR permitting applicability is triggered, then Omega Protein would be subject to a full minor NSR and BACT review or Omega Protein would need to accept a federally enforceable emission limit of 9 tons per year for the affected pollutant(s) above its (their) past actual emissions.

Mr. William Black  
September 5, 2007  
Page 3

If you have any questions regarding this letter, please contact me at (804)527-5166 or via e-mail at [lachildress@deq.virginia.gov](mailto:lachildress@deq.virginia.gov).

Sincerely,

Lisa A. Childress  
Environmental Engineer Senior

Cc: Lyell Jett, Omega Protein

33

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COMMONWEALTH of VIRGINIA

DMosca

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AUG 28 2007

PRO

**Omega Protein, Inc.**  
**P.O. Box 175**  
**Reedville, VA 22539**

Northumberland County

DEQ Copy



Department of Conservation & Recreation

CONSERVING VIRGINIA'S NATURAL & RECREATIONAL RESOURCES

York/Rappahannock Watershed Office  
P. O. Box 1425  
Tappahannock, VA 22560  
(804) 443-3162



L. Preston Bryant, Jr.  
Secretary of Natural  
Resources



Joseph H. Maroon  
Director

**COMMONWEALTH of VIRGINIA**  
**DEPARTMENT OF CONSERVATION AND RECREATION**

203 Governor Street, Suite 206

Richmond, Virginia 23219

Phone: (804) 786-2064 Fax: (804) 786-1798

September 6, 2007

Omega Protein, Inc.  
P.O. Box 175  
Reedville, VA 22539

The nutrient management plan dated 8/27/2007 for land application of a sludge by-product in Northumberland County in Watershed CB03 has been approved by the Department of Conservation and Recreation for coverage under a Virginia Pollution Abatement (VPA) permit.

It should be noted that this plan expires 8/27/2010. We recommend the process of revising this nutrient management plan begin at least six months prior to the expiration date.

A copy of this letter should be kept with your nutrient management plan and a copy of this letter and the plan must be sent to the Piedmont Regional Office of the Department of Environmental Quality.

If you have any questions concerning this letter, please feel free to contact me at (804) 371-6133 or e-mail [seth.mullins@dcr.virginia.gov](mailto:seth.mullins@dcr.virginia.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Seth Mullins".

Seth Mullins  
Nutrient Management Coordinator  
Division of Soil and Water Conservation

cc: David Kindig  
Robert Waring, DCR  
Piedmont, DEQ

## **NUTRIENT MANAGEMENT PLAN IDENTIFICATION**

### **Operator**

Omega Protein, Inc.  
P.O. Box 175  
Reedville, VA 22539  
(804) 453 4211

**Integrator:** None

### **Farm Coordinates**

Easting: 0, Northing: 0, zone: 18

### **Watershed Summary**

watershed: CB03  
county: Northumberland

### **Nutrient Management Planner**

Robert Waring  
Nutrient Management Specialist  
VADCR  
P.O. Box 1425  
Tappahannock, VA 22560

**Certification Code:** 250

### **Acreage Use Summary**

Total Acreage in this plan: 28.3

Cropland:	0.
Hayland:	0.
Pasture:	0.
Specialty:	28.3

Plan written 8/27/2007  
Valid until 8/27/2010

Signature: \_\_\_\_\_

Planner

08/27/07  
date

## Nutrient Management Plan Narrative

This nutrient management plan was developed for Omega Protein, Inc. who operates in Northumberland County. The plan has been developed as a requirement for the Virginia Pollution Abatement general permit. A sludge by-product from the processing of menhaden fish is dried and stored for application to turf grass fields. Approximately 28 acres is available for land application of the sludge waste. The rates of application were determined from the nutrient needs of the grass based on representative soil tests and not from the production amounts of the menhaden sludge. The lagoons have never been cleaned out since production began and therefore, the amount of sludge to be applied can only be estimated. Once application begins, a revised plan should be developed if the amounts of sludge stored on site exceed the amounts of sludge in the nutrient management plan.

Soil tests taken in the fall of 2005 and the spring of 2006 were used in determining appropriate sludge applications. Soil tests should be retaken when possible to update soil pH results and determine if liming is required. See attached soil test summary sheet for recommended application dates and liming rates. All liming recommendations are now derived from the *pH buffer index* instead of soil pH. Please refer to the attached charts for clarification of lime recommendations.

Particular attention should be given to fields containing high environmentally sensitive soils due to leaching, drainage, slopes > 15%, flooding frequency listed as "frequent" in soil surveys, subsurface tile drained areas and fields containing sinkholes. Fields containing at least 33% of field surface area with one or more of the aforementioned features are highlighted solid on the adjoining aerial maps. Further direction is given in the "notes" on the balance sheets for the high environmentally sensitive fields as to particular split application practices and recommendations for timely applications of manure, biosolids and commercial fertilizer.

# **Nutrient Management Plan Special Conditions for Virginia Pollution Abatement (VPA) and Virginia Pollutant Discharge Elimination System (VPDES) Permits**

April 2006

**The following management practices will be utilized for operations requiring a VPA or VPDES permit and located in eastern Virginia (east of I-95):**

1. Soil samples for sludge application fields will be analyzed at least once every three (3) years for pH, phosphorus, potassium, calcium, and magnesium in order to maximize the efficient utilization of nutrients. A representative soil sample of each field will be comprised of at least 20 cores randomly sampled throughout the field. Soil sampling core depth will be from 0 – 4 inches for land which has not been tilled within the past three years, or 0 – 6 inches for land that has been tilled within the past three years. Soil pH will be maintained at appropriate agronomic levels to promote optimum crop growth and nutrient utilization.
2. Soil test analysis will be performed by one of the laboratories listed below. Soil phosphorus levels must be determined using the Mehlich I or Mehlich III procedure.
  - A&L Agricultural Laboratories
  - Brookside Laboratories
  - Spectrum Analytical Laboratories
  - Virginia Tech Soil Testing Lab
  - Waters Agricultural Laboratories
3. Representative sludge samples will be analyzed at a minimum of once every three years for VPA permits and once per year for VPDES permits for the following: total nitrogen or total Kjeldahl nitrogen, ammonia-nitrogen, total phosphorus, total potassium, and percent moisture. All sludge analyses shall be performed using laboratory methods consistent with Recommended Methods of Manure Analysis, publication A3769, University of Wisconsin, 2003 or other methods approved by the Department of Conservation and Recreation. Sludge analysis results will be used to determine actual sludge rates that do not exceed the nitrogen and phosphorus application rates specified in the nutrient management plan using either the most recent analysis results (not greater than 1 year old) or the facilities average results based on actual analysis.
4. All crops will be planted and harvested in a timely manner using commercially acceptable management practices.
5. Make sludge applications at or near planting or to existing actively growing crops to assure that nutrients are properly utilized. Additional commercial fertilizer applications (especially nitrogen) should be made as a split application separate from the sludge application, either as a sidedress or topdress application.

For permanent hay or pasture, an adequate stand of hay and/or pasture crop species will be established prior to land application of sludge. Commercially acceptable stands of the

listed species will be maintained and other weeds and grasses controlled. All hay crops will be harvested in a timely and regular manner, removed from fields, and utilized for a suitable purpose.

6. Sludge will be applied to application sites in a uniform manner.
7. Do not spread sludge on soils that are saturated, ice or snow covered in order to avoid runoff from application fields. Dry sludge may be applied to frozen ground only under the following conditions:
  - a) Slopes are not greater than 6%;
  - b) A minimum of a 200 foot vegetative or adequate crop residue buffer is maintained between the application area and all surface water courses;
  - c) Only those soils characterized by USDA as "well drained" with good infiltration are used; and
  - d) At least 60% uniform cover by vegetation or crop residue is present.
8. Do not spread sludge within the following setback areas:
  - 100 feet from wells or springs
  - 35 feet from surface waters if the entire setback is a permanent perennial vegetated buffer

OR

100 feet from surface waters if there is not a permanent perennial vegetated buffer of at least 35 feet in width

  - 50 feet from sinkholes\*
  - 50 feet from limestone rock outcrops
  - 25 feet from other rock outcrops
  - 10 feet from agricultural drainage ditches (5 feet if injected)
  - 200 feet from occupied dwellings (unless waived in writing by the occupant)

\*Waste shall not be applied in areas subject to concentrated flow generated by runoff from storm events such that it would discharge into sinkholes in the area.
11. For odor control and to reduce drift, avoid spreading on windy days.
12. If sludge is stackable and contains less than 40% moisture, storage may be utilized for up to 14 days on sites meeting the following criteria:

The slope is not greater than 7%,  
The site must be at least 100 feet from any surface water, intermittent drainage, wells, sinkholes, rock outcrops and springs.
13. Storage sites used for greater than 14 days must be identified in this plan. These sites which are not covered by a roof must meet the following criteria:
  - a) The sludge can not be stored for greater than 180 days; and
  - b) The waste is covered with a waterproof reinforced tarp (ultraviolet resistant is preferable) or impermeable sheeting of 6 mil thickness or greater; that is anchored against wind on the perimeter and weighted on the top; and

- c) The waste stockpile is protected from storm water running onto or under it.
14. New waste storage facilities shall be designed, constructed and operated in accordance with the USDA-NRCS Field Office Technical Guide and other appropriate NRCS design criteria.
  15. Spreader calibration is extremely critical to ensure proper application rates. Calibration of equipment or verification of actual equipment application rates shall occur at a minimum of once per year.
  16. Nutrient management plans that contain fields in which row crops will be grown, will be revised at least once every three (3) years. Nutrient management plans that contain only hay or pasture fields will be revised at least once every five (5) years. Any such plan revisions will be submitted to DCR for review and approval.
  17. This nutrient management plan must be amended or modified if: animal numbers increase above the level specified in the plan; animal types including intended market weights are changed; additional imported manure, biosolids, or industrial waste that was not identified in the existing plan is applied to fields under the control of the operator; available land area for the utilization of manure decreases below the level necessary to utilize manure in the plan; or manure application fields have Mehlich 1 soil phosphorus levels at or above 55 ppm (110 pounds/acre P) where either cropping systems, rotations, or fields are changed.
  18. Minor plan amendments involving changes to the cropping system, crop rotations, specific application fields, manure analysis results or minor fluctuations in animal market weights or animal numbers (10% or less cumulative increase since this original plan was developed.) may be made to this nutrient management plan by the specific certified nutrient management planner that developed this NMP without the prior approval of DCR. Any such plan amendments must be made prior to subsequent nutrient application to fields impacted by the change. Certified nutrient management planners shall provide a copy of any such plan amendments to DCR within two weeks of the plan modification.
  19. All major plan modifications shall be submitted to DCR for review and approval prior to implementing any changes. Major modifications include but are not limited to: proposed changes to the plan expiration date; increases in animal numbers of greater than 10% or changes in animal types including intended market weight; additional imported manure, biosolids, or industrial wastes not included in the original NMP are to be applied; or available land area for the utilization of manure decreases below the level necessary to utilize manure in the plan due to sale of land, expired lease, etc.
  20. These conditions do not override any local or county ordinances that may be more restrictive.

## CLOSURE OF WASTE STORAGE FACILITIES

When the waste storage facility is no longer needed, the owner or operator shall close the storage facility in a manner that minimizes the need for further maintenance, and controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, the post closure escape of uncontrolled leachate, surface runoff, or waste decomposition products to ground water, surface water or to the atmosphere. At closure, the owner or operator shall remove all liquid waste and animal waste residue from the waste storage facility. All devices used to convey animal waste into the animal waste storage facility shall be removed. Removed waste materials shall either be utilized according to this nutrient management plan or disposed of as solid waste according to the requirements of the Virginia Solid Waste Management Regulations, 9 VAC 20-80-10 et seq.

Once the waste is removed, the owner or operator is required to follow the procedures outlined below to either backfill the facility or convert the facility to a fresh water pond:

- If the facility will be backfilled, clay liners on interior side slopes will be removed using earth moving equipment or destroyed using sub-soiling equipment and any synthetic liners on side slopes will be rolled or folded and placed in the bottom of the structure prior to backfilling. Such liner removal or destruction shall, at a minimum, occur in the area from the top of the structure to a depth of within three feet of the structure bottom or groundwater whichever is greatest in elevation at the time of closure. The storage facility shall be backfilled with clean material. The animal waste storage facility site shall have a final earthen cover that is designed and constructed to: minimize infiltration of rainwater; minimize erosion of the final cover or side slope material; prevent ponding and support a suitable vegetative cover. In order to ensure proper drainage, the final cover shall have a minimum slope of 5%. Following installation, the owner or operator shall maintain the integrity and effectiveness of the final cover, including any repair needed due to settlement, subsistence, erosion or other events and preventing run-on and run-off from eroding or otherwise damaging the final cover.
- If the facility will be converted to a fresh water pond, the structure to be converted shall be reconstructed as necessary to meet the standard specification for ponds (practice #378) as contained in the Natural Resources Conservation Service (NRCS) Field Office Technical Guide and shall include a principle spillway and an emergency spillway if an embankment of three feet or more exists.

The owner or operator shall complete these closure activities within six months after the last date on which animal waste is placed in the waste storage facility unless the nutrient management plan is revised and approved by the Department of Conservation and Recreation (DCR). The owner and operator shall notify the regional office of the Department of Environmental Quality (DEQ) upon completion or grading of the final earthen cover or completion of the converted pond structure.

## Environmental Risk Factors

This nutrient management plan was developed for Omega Protein, Inc. who operates in Northumberland County. All sources of nutrients including commercial fertilizer, animal manures, biosolids, and previous legume crops combined should not exceed those rates specified in this plan.

This site-specific plan is based on the predominant soil types and their associated yield records, crop rotation, soil tests and leaching index found in the field. Credit is given for residual nutrients derived from legumes in previous crops. With implementation of this plan, one will help avoid economic, agronomic, and environmental problems that may be due to soil fertility levels. For individual field recommendations, please refer to the nutrient balance sheets provided.

In order to provide accurate fertilizer recommendations, it is important to take soil samples once every three years. These samples provide valuable information such as soil fertility levels and pH. Based on this information, the soil types and associated productivities, the amount of plant nutrients for a rotation can be identified. Recommendations included in this plan focus on efficiency through timing and proper rates of organic or inorganic fertilizer on farmland. Refer to the soil test summary report in this plan for all liming recommendations.

The data used in the form of maps and acreage was obtained from associated Soil and Water Conservation Districts. All other field information was provided by the operator for which this plan was written. Please refer to the enclosed documents for specific field by field information, i.e. nutrient balance sheets and productivity summaries. If other forms of nutrient sources are used during the plan (sludge, manure, etc...), appropriate balance sheets must be substituted to reflect nutrients applied or addressed in the form of a revised plan.

### **ADDITIONAL CONSIDERATIONS:**

- a.) Maintain agronomic pH levels for maximum plant utilization of applied nutrients.
- b.) Avoid or reduce fertilizer applications near streams, wells, or other environmentally sensitive areas.
  - \*100 feet from wells or springs
  - \*50 feet from surface water if surface applied
  - \*25 feet from surface water if injected
  - \*50 feet from sinkholes
  - \*50 feet from limestone rock outcrops
  - \*25 feet from other rock outcrops
  - \*10 feet from agricultural drainage ditches (5 feet if injected)
- c.) Control erosion in fields receiving fertilizer and/or manure applications. Do not apply to frozen or snow covered ground.
- d.) Split nitrogen applications on corn and small grain to minimize runoff, leaching and to help increase availability to plant over a longer period of time and to help increase yields.
- e.) Give credit for carryover nitrogen from previous legume crops, animal manures and any other organic source of nutrients.



f.) The proper timing rate, and placement of fertilizer and/or animal manure is critical for reducing leaching and runoff of nutrients from these sources. It also helps to ensure that you maximize uptake of nutrients by crops from the nutrients used.

g.) Make sure application equipment is properly calibrated to achieve proper application rates of nutrients.

h.) For odor control and to reduce drift, avoid spreading on windy days.

## Manure Spreading Summary

Season	Manure	Rate/ac	Tract	Field	Acres	Crop	Total in Field	Running Total
2007Fa	Composted sludge	15.0 tons	Airfield	1	9	Est. Turfgrass	137 tons	137 tons
		15.0 tons	Net Facili	1	13	Est. Turfgrass	200 tons	336 tons
		15.0 tons	Sea Coast	1	6	Est. Turfgrass	89 tons	425 tons

Season	Manure	Rate/ac	Tract	Field	Acres	Crop	Total in Field	Running Total
2008Fa	Composted sludge	15.0 tons	Airfield	1	9	Est. Turfgrass	137 tons	137 tons
		15.0 tons	Net Facili	1	13	Est. Turfgrass	200 tons	336 tons
		15.0 tons	Sea Coast	1	6	Est. Turfgrass	89 tons	425 tons

Season	Manure	Rate/ac	Tract	Field	Acres	Crop	Total in Field	Running Total
2009Fa	Composted sludge	15.0 tons	Airfield	1	9	Est. Turfgrass	137 tons	137 tons
		15.0 tons	Net Facili	1	13	Est. Turfgrass	200 tons	336 tons
		15.0 tons	Sea Coast	1	6	Est. Turfgrass	89 tons	425 tons

### **Field Productivities for Major Crops**

Tract Name	Tract/ Field	Field Name	Acres	Predominant Soil Series	Corn	Small Grain	Alfalfa	Grass Hay	Environmental Warnings
Airfield	/1	1	9	BERTIE	IIIa	II	Not Suited	II	
Net Facility	/1	1	13	MATAPEAKE	IIIa	II	III	II	
Sea Coast Pr	/1	1	6	MATAPEAKE	IIIb	III	III	III	

### **Yield Range**

Field Productivity Group	Corn Grain Bu/Acre	Barley/Intensive Wheat Bu/Acre	Std. Wheat Bu/Acre	Alfalfa Tons/Acre	Grass/Hay Tons/Acre
I	>170	>80	>64	>6	>4.0
II	150-170	70-80	56-64	4-6	3.5-4.0
III	130-150	60-70	48-56	<4	3.0-3.5
IV	100-130	50-60	40-48	NA	<3.0
V	<100	<50	<40	NA	NA

**Soil Test Summary**

Tract	Field	Acre	Date	P2O5	K2O	Lab	Soil pH	Lime Date	rec. lime tons/Ac
Airfield	1	9	2006-Sp	L- (4 P lbs/acre)	L (38 K lbs/acre)	Virginia Tech	5.1		
Net Facility	1	13	2006-Sp	M- (20 P lbs/acre)	L (22 K lbs/acre)	Virginia Tech	5.		
Sea Coast Property	1	6	2005-Fa	L (7 P lbs/acre)	L (34 K lbs/acre)	Virginia Tech	5.1		

Lime Recommendations for Va Tech soil tests based on Soil buffer pH

Buffer pH	Target Soil pH					Acidity meq/100g
	5.2	5.8	6.2	6.5	6.8	
6.60	0.00	0.00	0.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	0.00	0.00	0.03
6.40	0.00	0.00	0.00	0.00	0.50	0.06
6.38	0.00	0.00	0.25	0.25	0.50	0.12
6.36	0.00	0.00	0.25	0.25	0.75	0.24
6.34	0.00	0.00	0.25	0.50	0.75	0.36
6.32	0.00	0.00	0.50	0.50	0.75	0.48
6.30	0.00	0.00	0.50	0.75	1.00	0.59
6.28	0.00	0.25	0.75	0.75	1.00	0.71
6.26	0.00	0.25	0.75	1.00	1.25	0.83
6.24	0.00	0.25	0.75	1.00	1.25	0.95
6.22	0.00	0.50	1.00	1.00	1.50	1.07
6.20	0.00	0.50	1.00	1.25	1.50	1.19
6.18	0.00	0.75	1.25	1.25	1.75	1.30
6.16	0.00	0.75	1.25	1.50	1.75	1.42
6.14	0.25	0.75	1.50	1.50	2.00	1.54
6.12	0.25	1.00	1.50	1.75	2.00	1.66
6.10	0.50	1.00	1.50	1.75	2.25	1.78
6.08	0.50	1.25	1.75	2.00	2.25	1.90
6.06	0.50	1.25	1.75	2.00	2.25	2.02
6.04	0.75	1.25	2.00	2.00	2.50	2.13
6.02	0.75	1.50	2.00	2.25	2.50	2.25
6.00	1.00	1.50	2.00	2.25	2.75	2.37
5.95	1.00	1.75	2.25	2.50	3.00	2.67
5.90	1.25	2.00	2.50	3.00	3.25	2.96
5.85	1.50	2.25	2.75	3.25	3.50	3.26
5.80	1.75	2.50	3.25	3.50	3.75	3.56
5.75	2.00	2.75	3.50	3.75	4.25	3.85
5.70	2.25	3.00	3.75	4.00	4.50	4.15
5.65	2.50	3.25	4.00	4.25	4.75	4.45
5.60	2.75	3.50	4.25	4.50	5.00	4.74
5.55	3.00	3.75	4.50	4.75	5.25	5.04
5.50	3.25	4.00	4.75	5.25	5.50	5.34
5.40	3.75	4.50	5.25	5.75	6.25	5.93
5.30	4.25	5.00	5.75	6.25	6.75	6.52

\*table from VA nutrient management standards and criteria - revised october 2005

## Manure Production Summary

**Biosolid Name:** Composted sludge

*Availability:* unlimited

**Biosolid Type:** Composted

% solid: 65.0

pH: 6.2

%CCE: 0.0

*Biosolid Analysis (ppm):*

TKN: 4100

NH4-N: 900

NO3: 0

P2O5: 2290

K2O: 360

*Plant Available Nutrients:*

Immediate Incorporation:

1.41 lbs N

2.98 lbs P2O5

0.47 lbs K2O

Surface Applied:

1.0 lbs N

2.98 lbs P2O5

0.47 lbs K2O

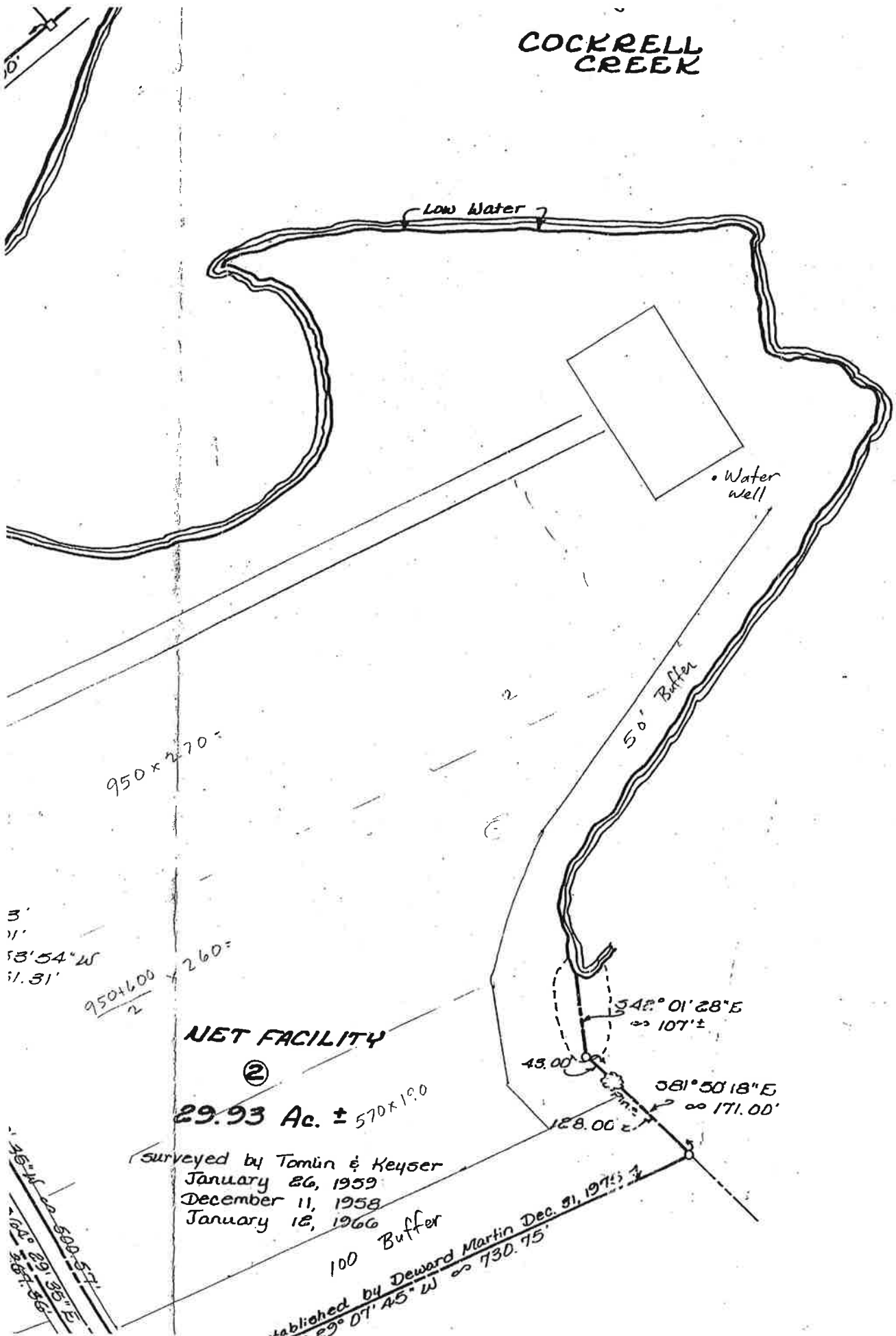
Residual N:

yr1: 0.21 lbs N

yr2: 0.12 lbs N

yr3: 0.0 lbs N

# COCKRELL CREEK



NET FACILITY

②

29.93 Ac. ± 570x19.0

Surveyed by Tomlin & Keyser  
January 26, 1959  
December 11, 1958  
January 12, 1966

100 Buffer

Established by Deward Martin Dec. 31, 1971  
29° 01' 45" W ≈ 730.75'

54° 01' 28" E  
≈ 107' ±

581° 50' 18" E  
≈ 171.00'

45.00'

128.00'

950x270'

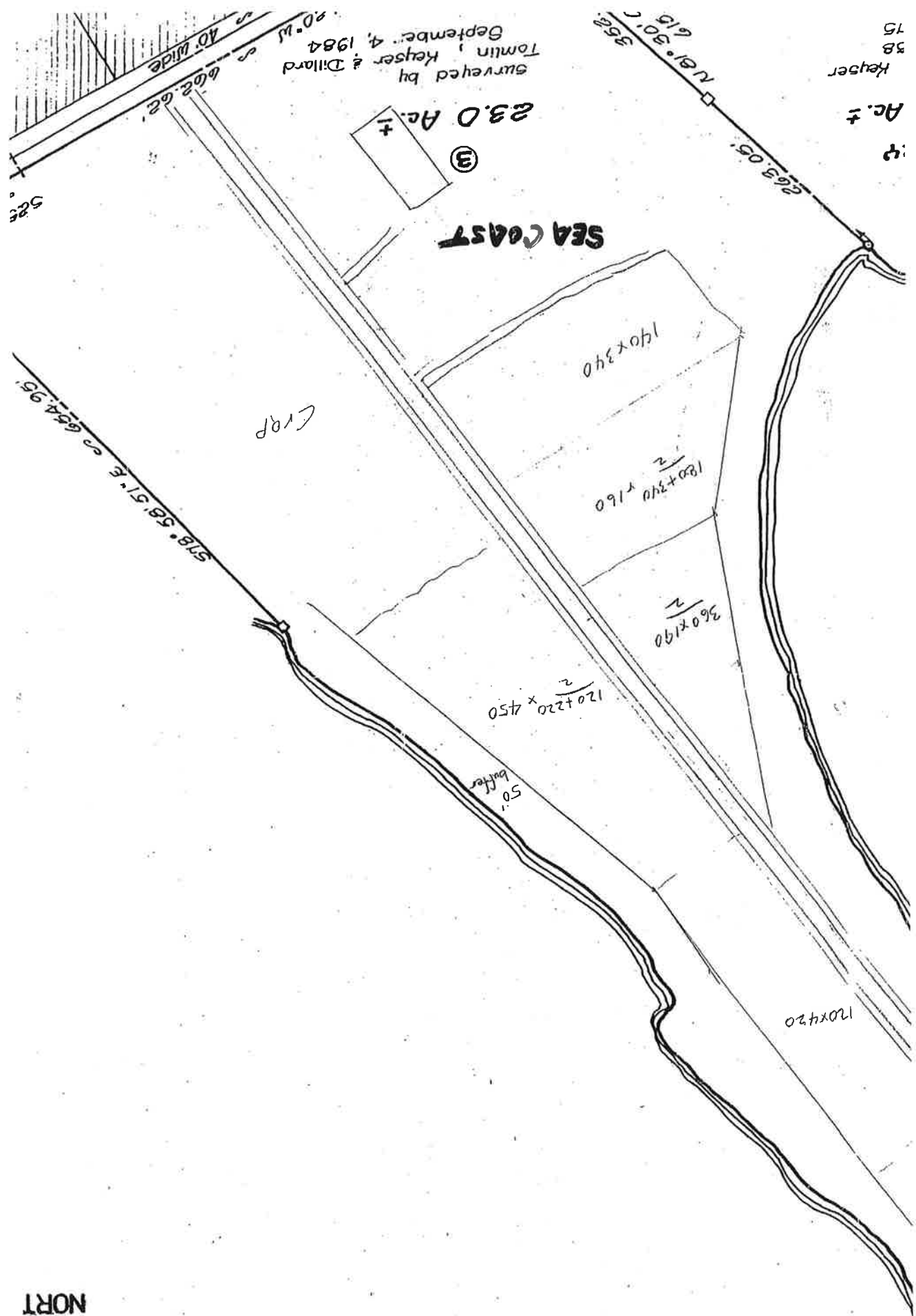
3'  
11'

53° 54' 45"  
11.31'

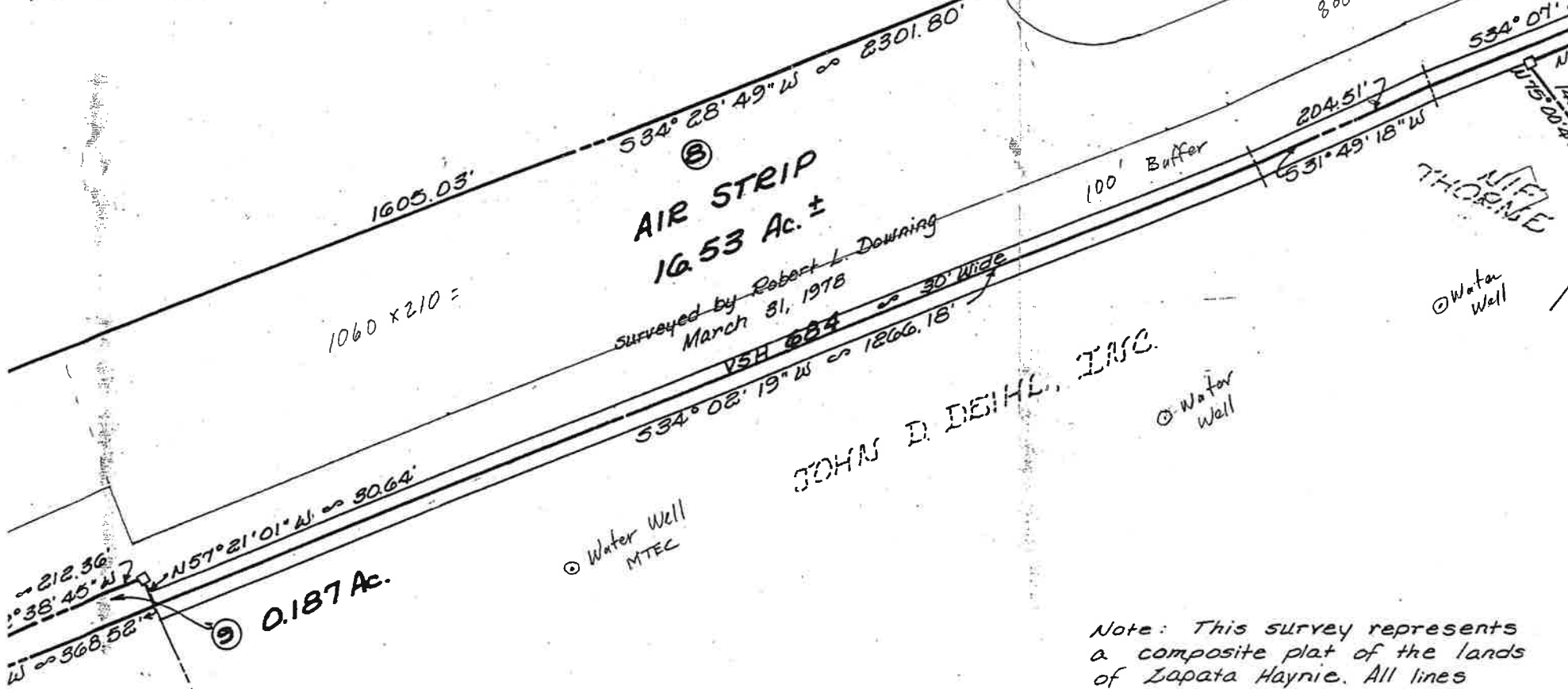
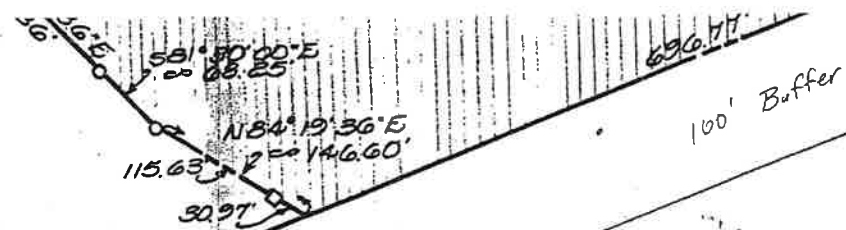
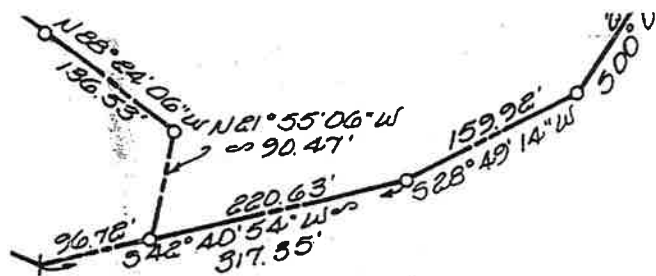
950x600' x 260'

45° 45' 45" W ≈ 500.57'  
50° 00' 00" W ≈ 500.00'  
50° 00' 00" W ≈ 500.00'  
50° 00' 00" W ≈ 500.00'

FAIR  
NORT







WERY

JOHN D. DEHL, INC.

Note: This survey represents a composite plat of the lands of Zapata Haynie. All lines determined by previous surveys and found points as noted on the plat. Buildings not located.

# Virginia Cooperative Extension

## Soil Test Report

Northumberland County Office  
P.O. Box 400  
Heathsville, VA 22473-0400  
804-580-5694

Virginia Tech Soil Testing Laboratory  
145 Smyth Hall (0465)  
Blacksburg, VA 24061  
www.soiltest.vt.edu

SEE ENCLOSED NOTES:

1 3

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W  
N  
E  
R

JETT LYELL  
OMEGA PROTEIN  
P O BOX 175  
REEDVILLE, VA 22539

C  
O  
P  
Y

BILL BLACK  
401 STUDEWOOD STE 208  
HOUSTON, 77007

## SAMPLE HISTORY

Sample ID	Field ID	LAST CROP		LAST LIME APPLICATION		SOIL INFORMATION				
		Name	Yield	Months Prev.	Tons/Acre	SMU-1 %	SMU-2 %	SMU-3 %	Yield Estimate	Productivity Group
NETES	NET HOUSE			---	0	MAA 100				II

## LAB TEST RESULTS (see Note 1)

Analysis	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)	S.Salts (ppm)
Result	20	22	182	36	1.1	1.9	1.7	47.5	0.1	64
Rating	M-	L	L-	L	SUFF	SUFF	SUFF	SUFF	SUFF	L

Analysis	Soil pH	Buffer pH	Est-CEC (meq/100g)	Acidity (%)	Base Sat. (%)	Ca Sat. (%)	Mg Sat. (%)	K Sat. (%)	Organic Matter (%)
Result	5.0	6.11	2.4	73.2	26.8	19.3	6.3	1.2	2.0

## FERTILIZER AND LIMESTONE RECOMMENDATIONS

Crop: Orchardgrass/Fescue-Clover Pasture (40)

Lime, TONS/AC		Fertilizer, lb/A		
Amount	Type	N	P2O5	K2O
1.5	Dolomitic	50	90	110

825. If stand contains less than 25 per cent clover, apply 40-60 lbs N/A.

131. If additional production is needed later on, apply 40 to 60 lbs/A of N during the grazing season. If you are planning to overseed a legume into the stand, omit the N recommendation.

122. P2O5 and K2O recommendations are for annual application. However, rates can be doubled and applied every other year if desired.

677. Soluble Salts are not high enough to cause salt injury.

A+L lab  
Richard  
804 743 9401

462 5780  
Barbara


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[A](#) | [A](#) | [A](#)
[Area of Interest](#)
[Soil Map](#)
[Soil Data Explorer](#)
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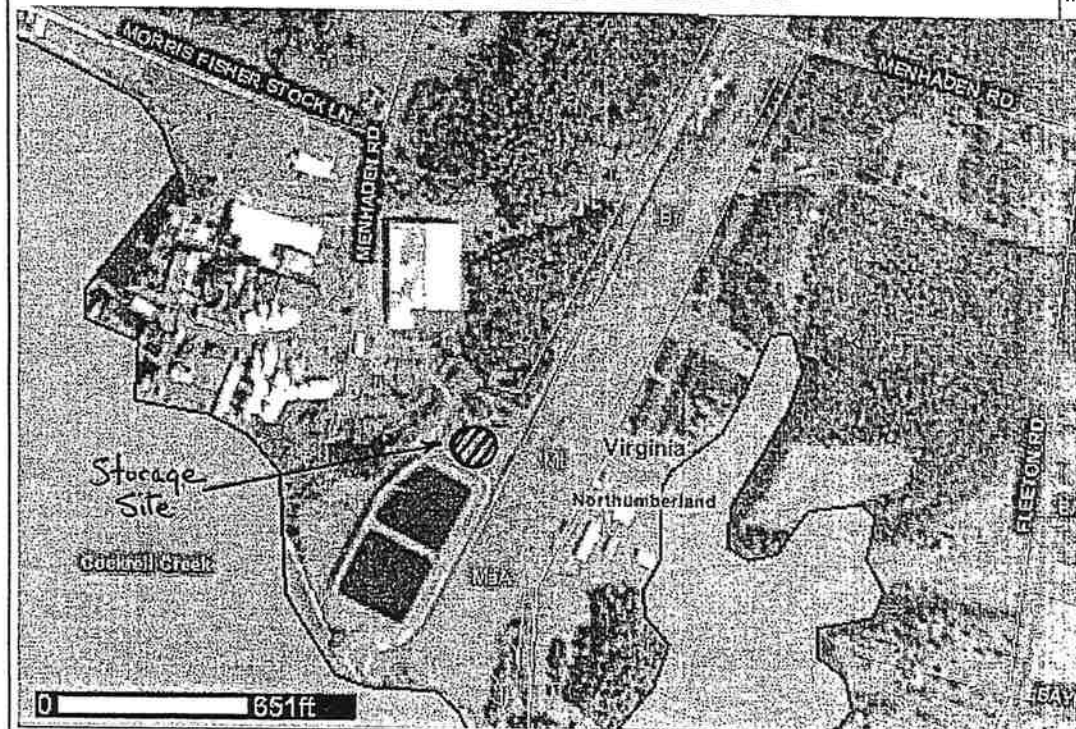
### Map Unit Legend Summary

#### Northumberland and Lancaster Counties, Virginia

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Br	Bertie silt loam	6.6	52.4
MaA	Matapeake silt loam, nearly level	3.4	27.2
Mt	Mattapex silt loam	1.8	14.1
SsD	Sloping sandy land	0.7	5.3
To	Tidal marsh, low	0.1	1.0

### Soil Map

Scale (not to scale)

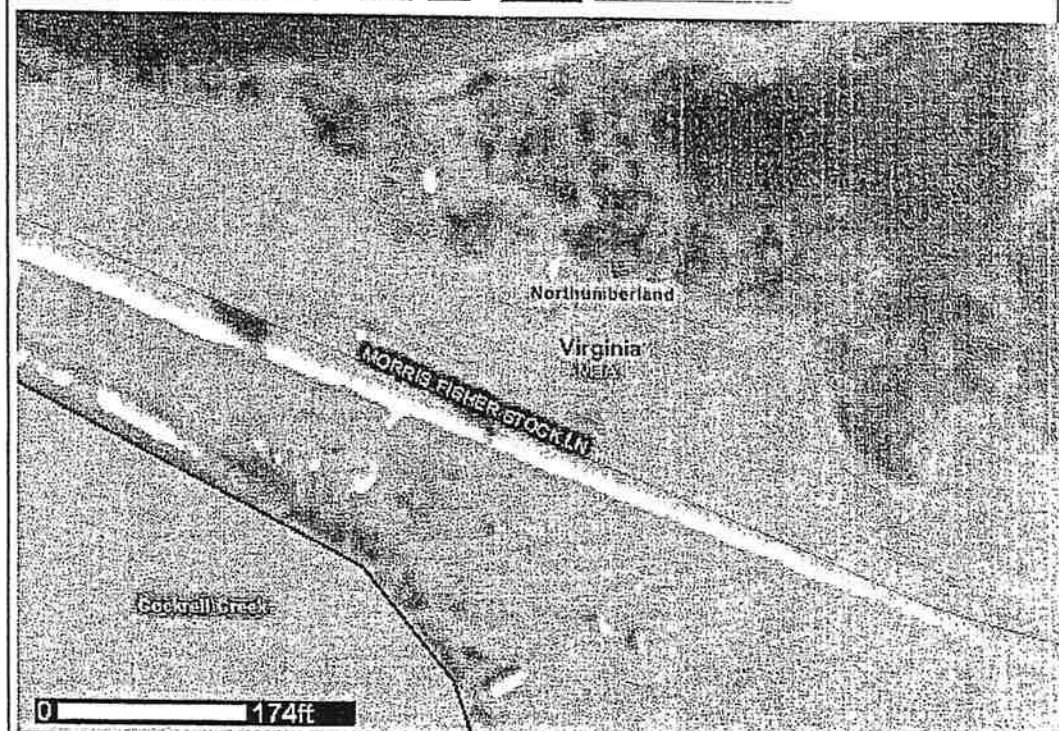
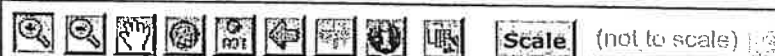


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A A A

[Area of Interest](#)**[Soil Map](#)**[Soil Data Explorer](#)[Create Printable Document](#)**Map Unit Legend Summary****Northumberland and Lancaster Counties, Virginia**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MaA	Matapeake silt loam, nearly level	2.3	91.8
SsD	Sloping sandy land	0.2	8.3

**Soil Map**[FOIA](#) | [Accessibility Statement](#) | [Privacy Policy](#) | [Non-Discrimination Statement](#) | [Information Quality](#) | [FirstGov](#) | [White House](#)



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[Area of Interest](#)

**Soil Map**

[Soil Data Explorer](#)

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### Map Unit Legend Summary

#### Northumberland and Lancaster Counties, Virginia

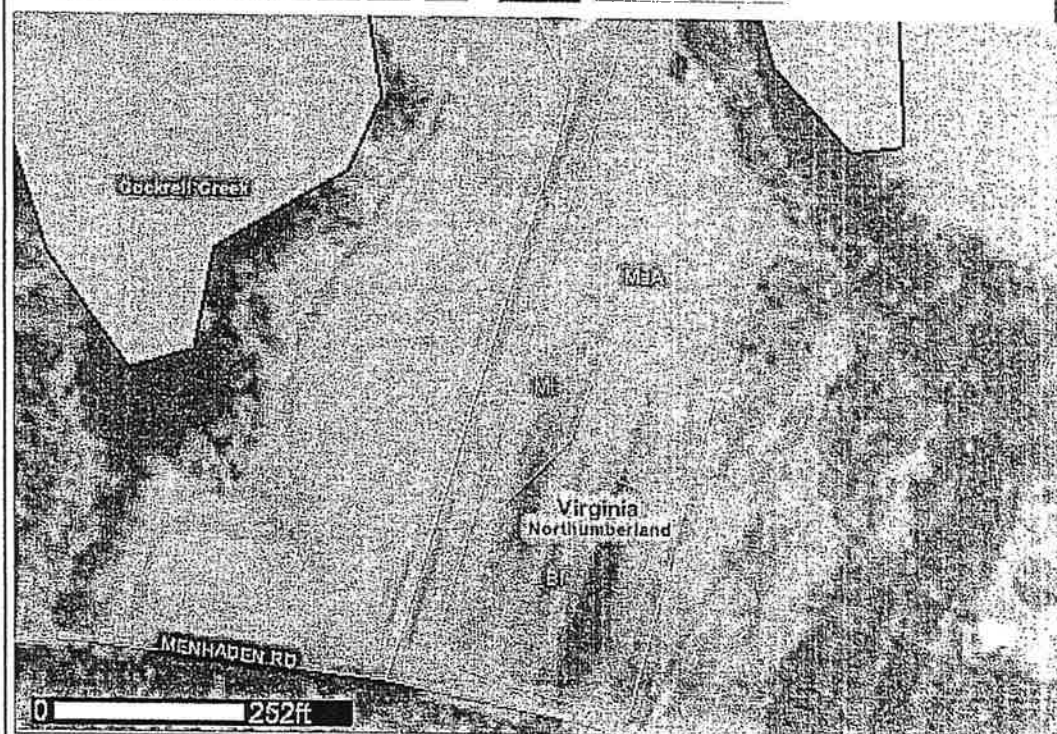
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Br	Bertie silt loam	1.7	37.2
MaA	Matapeake silt loam, nearly level	2.2	47.6
Mt	Mattapex silt loam	0.5	11.1
SsD	Sloping sandy land	0.2	4.1

### Soil Map



Scale

(not to scale)



**Nutrient Management Plan Balance Sheet**  
**(Spring, 2007-Winter, 2010)**  
**Omega Protein, Inc.**  
**Planner: Robert Waring (cert. No. 250)**

Tract: Airfield      Location: Northumberland  
(N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - applied N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes	
1/1(N)	9/9	2007	Est. Turfgrass	120-120-220	0/0	15.t Compos(Fa)	>7	15-45-7	105-75-215	N/A	105-75- 215(br)		
		2008	... ..	120-120-220	0/3	15.t Compos(Fa)	>7	15-45-7	100-75-215	N/A	100-75- 215(br)		
		2009	... ..	120-120-220	0/5	15.t Compos(Fa)	>7	15-45-7	100-75-215	N/A	100-75- 215(br)		
		2010	... ..	0-0-0	0/5				(5)-0-0	N/A			

Commercial Application Methods:  
br - Broadcast ba - Banded sd - Sidedress

Notes:

Tract: Net Facility Location: Northumberland

(N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes	
1/1(N)	13/13	2007	Est. Turfgrass	120-90-220	0/0	15.t Compos(Fa)	>7	15-45-7	105-45-215	N/A	105-45- 215(br)		
		2008	... ..	120-90-220	0/3	15.t Compos(Fa)	>7	15-45-7	100-45-215	N/A	100-45- 215(br)		
		2009	... ..	120-90-220	0/5	15.t Compos(Fa)	>7	15-45-7	100-45-215	N/A	100-45- 215(br)		
		2010	... ..	0-0-0	0/5				(5)-0-0	N/A			

Commercial Application Methods:

br - Broadcast ba - Banded sd - Sidedress

Notes:



Tract: Sea Coast Property Location: Northumberland  
(N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes	
1/1(N)	6/6	2007	Est. Turfgrass	100-80-130	0/0	15.t Compos(Fa)	>7	15-45-7	85-35-125	N/A	85-35-125(br)		
		2008	*** **	100-80-130	0/3	15.t Compos(Fa)	>7	15-45-7	80-35-125	N/A	80-35-125(br)		
		2009	*** **	100-80-130	0/5	15.t Compos(Fa)	>7	15-45-7	80-35-125	N/A	80-35-125(br)		
		2010	*** **	0-0-0	0/5				(5)-0-0	N/A			

Commercial Application Methods:  
br - Broadcast ba - Banded sd - Sidedress

Notes:



# ANIMAL WASTE ANALYSIS REPORT

Agricultural Service Laboratory  
Clemson University

LAB No. 101313

OMEGA, PROTEIN

P O BOX 175

REEDVILLE VA

22539

ACCOUNT 1001703

DATE 10-27-2006

ROBERT.WARING@DCR.VIRGINIA.GOV

CONSULTANT ROBERT WARING VADCR

SAMPLE NO. FALL2006

MANURE: OTHER INTEGRATOR:

STORAGE: UNCOVERED

-----RESULTS REPORTED ON AN AS-SAMPLED BASIS-----

ANALYST				lbs/ton
pj	Ammonium Nitrogen	0.09	%	1.80
pj	Total Nitrogen	0.41	%	8.15
-----				
dw/km	Phosphorus as P2O5	0.10	%	2.08
dw/km	Potassium as K2O	0.03	%	0.62
dw/km	Calcium	0.14	%	2.85
dw/km	Magnesium	0.03	%	0.52
	Sulfur	0.05	%	0.91
	Zinc	11.02	ppm	0.02
	Copper	50.55	ppm	0.10
	Manganese	7.13	ppm	0.01
	Sodium	51.20	ppm	0.10
	Aluminum	3629.40	ppm	7.26
jp	Moisture	35.19	%	

All of the potash in the animal waste should be plant available in the first year of application. Although not all of the phosphorous is available in the first year, its availability should be comparable to that in commercial fertilizers.

The rate of animal waste to apply for crop production is dependent on the nutrient content of the waste, method of application and incorporation, soil test, crop to be grown, and previous manure applications. In most cases, the plant available nitrogen content of the waste is used to determine the rate of application.

APPROVED BY \_\_\_\_\_

Analysis performed in accordance with Clemson Laboratory Manure Analysis procedures, February, 2004.

Manure analysis in Virginia is funded by the Dept. of Conservation and, Recreation, Div. of Soil and Water Conservation.

The Agricultural Service Laboratory is a public service of Clemson University, an equal opportunity educational institution: <http://www.clemson.edu/agsrvlb>

# Virginia Cooperative Extension

## Soil Test Report

Northumberland County Office  
P.O. Box 400  
Heathsville, VA 22473-0400  
804-580-5694

Virginia Tech Soil Testing Laboratory  
145 Smyth Hall (0465)  
Blacksburg, VA 24061  
www.soiltest.vt.edu

SEE ENCLOSED NOTES:

1 17

REKXWD

PROTEIN OMEGA  
POBOX 175

C F  
O O  
P R  
Y

REEDVILLE, VA 22539

## SAMPLE HISTORY

Sample No.	Location	Depth	Time	Remarks	Analyst	Lab No.	Field No.	Plant	Soil	Water	Other
SOUTH	Sea Coast										

## LAB TEST RESULTS (see Note 1)

Parameter	Value	Unit	Value	Unit	Value	Unit	Value	Unit	Value	Unit
PH	7		34		576		56		15.5	
Ca	L		L		L+		L+		SUFF	
Mg									SUFF	
K									SUFF	
P									SUFF	
S	5.1		6.07		3.7		53.4		46.6	
Na									39.2	
Cl									6.3	
Fe									1.2	

## FERTILIZER AND LIMESTONE RECOMMENDATIONS

Crop: LAWN MAINTENANCE - BLUEGRASS, FESCUE (202)

612. LIME RECOMMENDATIONS: Apply 90 pounds of agricultural limestone (ground or pulverized) per 1000 square feet in several small applications of up to 50 lbs each, at intervals of 1 to 6 months, until the full amount is applied.

205. FERTILIZER RECOMMENDATIONS: Apply a 1-1-1, 1-2-2 or 2-1-1 ratio fertilizer (examples of grades to use are 10-10-10, 5-10-10, 10-20-20, 16-8-8, etc.) according to the instructions in the enclosed note on lawn fertilization.

# Virginia Cooperative Extension

## Soil Test Report

Northumberland County Office  
P.O. Box 400  
Heathsville, VA 22473-0400  
804-580-5694

Virginia Tech Soil Testing Laboratory  
145 Smyth Hall (0465)  
Blacksburg, VA 24061  
www.soiltest.vt.edu

SEE ENCLOSED NOTES:

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JETT LYELL  
OMEGA PROTEIN  
P O BOX 175  
REEDVILLE, VA 22539

C  
F  
O  
R  
Y

BILL BLACK  
401 STUDEWOOD STE 208  
HOUSTON, 77007

## SAMPLE HISTORY

Sample ID	Field ID	LAST CROP		LAST LIME APPLICATION		SOIL INFORMATION				
		Name	Yield	Months Prev.	Tons/Acre	SMU-1 %	SMU-2 %	SMU-3 %	Yield Estimate	Productivity Group
AIRFD	AIRFIELD			---	0					III

## LAB TEST RESULTS (see Note 1)

Analysis	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)	Salts (ppm)
Result	4	38	313	54	1.1	0.8	0.3	43.6	0.1	38
Rating	L	L	L	L+	SUFF	SUFF	SUFF	SUFF	SUFF	L

Analysis	Soil pH	Buffer pH	Est-CEC (meq/100g)	Acidity (%)	Base Sat. (%)	Ca Sat. (%)	Mg Sat. (%)	K Sat. (%)	Organic Matter (%)
Result	5.1	6.00	3.4	69.3	30.7	22.8	6.5	1.4	2.2

## FERTILIZER AND LIMESTONE RECOMMENDATIONS

Crop: Orchardgrass/Fescue-Clover Pasture (40)

Lime, TONS/AC		Fertilizer, lb/A		
Amount	Type	N	P2O5	K2O
2	AG	50	50	70

890. Soil Survey map unit information was not provided, neither was a field Yield estimate. As a result only generalized fertilizer recommendations could be made. Field specific and more scientifically-based recommendations can be provided if soil map unit information is included in the future. Contact your extension agent to learn how to obtain available soil survey information for your farm.

825. If stand contains less than 25 per cent clover, apply 40-60 lbs N/A.

131. If additional production is needed later on, apply 40 to 60 lbs/A of N during the grazing season. If you are planning to overseed a legume into the stand, omit the N recommendation.

122. P2O5 and K2O recommendations are for annual application. However, rates can be doubled and applied every other year if desired.

677. Soluble Salts are not high enough to cause salt injury.



**Denise Mosca**

---

**From:** "Mosca,Denise" <dmmosca@deq.virginia.gov>  
**To:** <dmosca@cox.net>  
**Sent:** Wednesday, July 18, 2007 4:04 PM  
**Subject:** FW: Omega Calculations

-----Original Message-----

**From:** Mullins, Seth (DCR)  
**Sent:** Wed 7/18/2007 3:56 PM  
**To:** Mosca,Denise  
**Cc:**  
**Subject:** Omega Calculations

Denise,

Below are the calculations that NutMan will go through when Bob lists the material as a "Composted Biosolid". The coefficients are found on page 117 of the 10/05 Nutrient Management Standards & Criteria. If you need any clarification about these let me know and like I said I'll let you know when I hear from Bob Waring.

Organic N = TKN - NH<sub>4</sub>-N  
 $8.15 - 1.8 = 6.35 \text{ lbs./Ton}$

1st year

Organic N =  $6.35 \times .1 (\text{coefficient}) = .635 \text{ lbs./Ton}$

NH<sub>4</sub>-N =  $1.8 \times .5 (\text{coefficient}) = .9 \text{ lbs./Ton}$

Total Plant Available Nitrogen (PAN) for each application will be 1.5 lbs./Ton

Each 15 ton application will supply ~23lbs. PAN

The residual N is calculated from the organic N fraction...

1st year after application =  $6.35 \times .05 (\text{coefficient}) = .3 \text{ lbs./Ton}$

2nd year after application =  $6.35 \times .03 = .2 \text{ lbs./Ton}$

The residual values are subtracted from the crop needs in the years following application.

Thanks,  
Seth

Seth Mullins  
Nutrient Management Coordinator, Animal Waste  
Virginia Department of Conservation and Recreation  
Division of Soil and Water Conservation  
203 Governor Street, Suite 206  
Richmond VA 23219-2094  
(804) 371-6133  
FAX (804) 786-1798  
seth.mullins@dcr.virginia.gov



John D. Held  
Executive Vice President  
General Counsel and Secretary

VA0003867 R-R-left

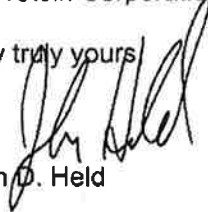
E-mail: johndheld@msn.com

September 14, 2007

To Whom It May Concern:

Please note that Thomas Blencowe is authorized to sign any Discharge Monitoring Reports on behalf of Omega Protein Corporation or its affiliates.

Very truly yours,

  
John D. Held



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

### PIEDMONT REGIONAL OFFICE

4949-A Cox Road, Glen Allen, Virginia 23060

(804) 527-5020 Fax (804) 527-5106

[www.deq.virginia.gov](http://www.deq.virginia.gov)

L. Preston Bryant, Jr.  
Secretary of Natural Resources

David K. Paylor  
Director

Gerard Seeley, Jr.  
Regional Director

September 17, 2007

Mr. Andrew Hall, Interim General Manager  
Omega Protein, Inc.  
P.O. Box 175  
Reedville, VA 22539

Re: Inspection, Omega Protein, Inc., Reedville, VA,  
VPDES Permit No. VA0003867

Dear Mr. Jett:

Enclosed is the report for the Technical Inspection conducted at Omega Protein, Inc., Reedville, VA on September 13, 2007. Please review the report carefully. There are no "Compliance Recommendations" with regard to this report.

Also enclosed is the report for the Laboratory Inspection conducted on the same day. The Laboratory Inspection Report Summary (page three) identifies deficiencies found during the Inspection. Please review the report carefully. In order to resolve these deficiencies, provide a written response addressing the deficiencies, citing corrective actions, within 30 days of receiving this letter.

If you have any questions regarding this report, please contact me at (804) 527-5055.

Sincerely,

A handwritten signature in cursive script that reads "Mike Dare".

Mike Dare  
Water Inspector

Enclosure

Cc: DEQ - OWPP (attn.: S. Stell)  
DEQ - Technical File  
EPA Region III



VA0003867

# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

### PIEDMONT REGIONAL OFFICE

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Sincerely,

Mike Dare  
Water Inspector

Enclosure

Cc: DEQ - OWPP (attn.: S. Stell)

~~DEQ~~ - Technical File  
EPA Region III



**VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY**

**Wastewater Facility Inspection Report**

<b>Facility Name:</b> <u>Omega Protein</u> <b>City/County:</b> <u>Northumberland</u> <b>Inspection Date:</b> <u>September 13, 2007</u> <b>Inspector:</b> <u>Mike Dare</u> <i>MD 9.17.07</i> <b>Reviewed By:</b> <i>CM Wood 10/8/07</i>	<b>Facility No.:</b> <u>VA0003867</u> <b>Inspection Agency:</b> <u>DEQ</u> <b>Date Form Completed:</b> <u>September 17, 2007</u> <b>Time Spent:</b> <u>12 hrs. w/ travel &amp; report</u> <b>Unannounced Insp.?</b> <u>No</u> <b>FY-Scheduled Insp.?</b> <u>Yes</u>																																				
<b>Present at Inspection:</b> <u>Ted Schultz, Andy Hall, Bill Black (Post inspection discussion), Lyell Jett (Pre and post inspection discussion)</u>																																					
<b>TYPE OF FACILITY:</b> <u>Domestic</u> <span style="margin-left: 200px;"><u>Industrial</u></span> <input type="checkbox"/> Federal <span style="margin-left: 40px;"><input type="checkbox"/> Major</span> <span style="margin-left: 40px;"><input checked="" type="checkbox"/> Major</span> <span style="margin-left: 40px;"><input type="checkbox"/> Primary</span> <input type="checkbox"/> Non-Federal <span style="margin-left: 40px;"><input type="checkbox"/> Minor</span> <span style="margin-left: 40px;"><input type="checkbox"/> Minor</span> <span style="margin-left: 40px;"><input type="checkbox"/> Secondary</span> <b>Population Served:</b> <u>approx.: (N/A)</u> <b>Number of Connections:</b> <u>approx.: (N/A)</u>																																					
<b>TYPE OF INSPECTION:</b> <input checked="" type="checkbox"/> Routine <span style="margin-left: 100px;">Date of last inspection: <u>June 10, 2005</u></span> <input type="checkbox"/> Compliance <span style="margin-left: 100px;">Agency: <u>DEQ/PRO</u></span> <input type="checkbox"/> Reinspection																																					
<b>EFFLUENT MONITORING: <i>See Discharge Monitoring Reports (DMR) in file</i></b>  <table style="width:100%;"> <tr> <td style="width:25%;">Last month average:</td> <td style="width:25%;">BOD: ____ mg/L</td> <td style="width:25%;">TSS: ____ mg/L</td> <td style="width:25%;">Flow: ____ MGD</td> </tr> <tr> <td colspan="4"><b>(Influent) Date:</b></td> </tr> <tr> <td colspan="4">Other:</td> </tr> <tr> <td>Last month:</td> <td>BOD: ____ mg/L</td> <td>TSS: ____ mg/L</td> <td>Flow: ____ MGD</td> </tr> <tr> <td colspan="4"><b>(Effluent) Date:</b></td> </tr> <tr> <td colspan="4">Other:</td> </tr> <tr> <td>Quarter average:</td> <td>BOD: ____ mg/L</td> <td>TSS: ____ mg/L</td> <td>Flow: ____ MGD</td> </tr> <tr> <td colspan="4"><b>(Effluent) Date:</b></td> </tr> <tr> <td colspan="4">Other:</td> </tr> </table>		Last month average:	BOD: ____ mg/L	TSS: ____ mg/L	Flow: ____ MGD	<b>(Influent) Date:</b>				Other:				Last month:	BOD: ____ mg/L	TSS: ____ mg/L	Flow: ____ MGD	<b>(Effluent) Date:</b>				Other:				Quarter average:	BOD: ____ mg/L	TSS: ____ mg/L	Flow: ____ MGD	<b>(Effluent) Date:</b>				Other:			
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<b>(Effluent) Date:</b>																																					
Other:																																					
<b>CHANGES AND/OR CONSTRUCTION</b> <b>DATA VERIFIED IN PREFACE</b> <span style="margin-left: 100px;"><input checked="" type="checkbox"/> Updated</span> <span style="margin-left: 40px;"><input type="checkbox"/> No changes</span> Has there been any new construction? <span style="margin-left: 100px;"><input checked="" type="checkbox"/> Yes*</span> <span style="margin-left: 40px;"><input type="checkbox"/> No</span> If yes, were plans and specifications approved? <span style="margin-left: 40px;"><input type="checkbox"/> Yes</span> <span style="margin-left: 40px;"><input type="checkbox"/> No*</span> <span style="margin-left: 40px;"><input type="checkbox"/> N/A (not ascertained)</span> DEQ approval date: <span style="margin-left: 100px;"><u>Generator for wastewater treatment lagoons,</u></span> <span style="margin-left: 100px;"><u>Ammonia stripper (approval date not ascertained)</u></span>																																					

**(A) PLANT OPERATION AND MAINTENANCE**

1. Class and number of licensed operators: Class I – 0, Class II – 0, Class III – 1, Class IV – 0, Trainee - 0
  2. Hours per day plant is staffed: WWTF: 4 hrs; Factory Security: 24 hrs/day
  3. Describe adequacy of staffing: ☐ Good ☒ Average ☐ Poor\*
  4. Does the plant have an established program for training personnel? ☒ Yes ☐ No
  5. Describe the adequacy of the training program: ☐ Good ☒ Average ☐ Poor\*
  6. Are preventive maintenance tasks scheduled? ☒ Yes ☐ No\*
  7. Describe the adequacy of maintenance: ☐ Good ☒ Average ☐ Poor\*
  8. Does the plant experience any organic/hydraulic overloading? ☐ Yes\* ☒ No
- If yes, identify cause and impact on plant: N/A
9. Any bypassing since last inspection? ☐ Yes\* ☒ No
  10. Is the on-site electric generator operational? ☐ Yes ☐ No\* ☒ N/A
  11. Is the STP alarm system operational? ☐ Yes ☐ No \* ☒ N/A
  12. How often is the standby generator exercised? ☐ Weekly ☐ Monthly ☒ Other: N/A
  - Power Transfer Switch? ☐ Weekly ☐ Monthly ☒ Other: N/A
  - Alarm System? ☐ Weekly ☐ Monthly ☒ Other: N/A
  13. When were the cross connection control devices last tested on the potable water service? N/A
  14. Is sludge disposed in accordance with the approved sludge disposal plan? ☐ Yes ☐ No\* ☒ N/A
  15. Is septage received by the facility? ☐ Yes ☒ No
  - Is septage loading controlled? ☐ Yes ☐ No \* ☒ N/A
  - Are records maintained? ☐ Yes ☐ No\* ☒ N/A
  16. Overall appearance of facility: ☐ Good ☒ Average ☐ Poor\*

**Comments: #4 Training consists of on-the-job training. #14 – A sludge disposal plan application has been submitted to DEQ. Due to ample storage space presently available in the sludge holding lagoon, disposal of sludge is not required at this time.**

**(B) PLANT RECORDS**

1. Which of the following records does the plant maintain?
- |   |   |                              |   |
|---|---|------------------------------|---|
| Operational Logs for each unit process                      | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A            |
| Instrument maintenance and calibration                      | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A            |
| Mechanical equipment maintenance                            | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A            |
| Industrial waste contribution <b>(Municipal Facilities)</b> | <input type="checkbox"/> Yes            | <input type="checkbox"/> No* | <input checked="" type="checkbox"/> N/A |
2. What does the operational log contain?
- |                      |   |  |   |
|----------------------|---|--|---|
| Visual Observations  | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | <input type="checkbox"/> N/A            |
| Flow Measurement     | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | <input type="checkbox"/> N/A            |
| Laboratory Results   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | <input type="checkbox"/> N/A            |
| Process Adjustments  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No*           | <input type="checkbox"/> N/A            |
| Control Calculations | <input type="checkbox"/> Yes            | <input type="checkbox"/> No            | <input checked="" type="checkbox"/> N/A |
| Other:               | <u>N/A</u>                              |  |   |
3. What do the mechanical equipment records contain:
- |                             |   |                              |                              |
|-----------------------------|---|------------------------------|------------------------------|
| As built plans and specs?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |
| Spare parts inventory?      | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |
| Manufacturers instructions? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |
| Equipment/parts suppliers?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |
| Lubrication schedules?      | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |
| Other:                      | <u>N/A</u>                              |                              |                              |
| Comments:                   | <u>None</u>                             |                              |                              |
4. What do the industrial waste contribution records contain:
- (Applicable to municipal facilities only)*
- |                                |                              |                              |   |
|--------------------------------|------------------------------|------------------------------|---|
| Waste characteristics?         | <input type="checkbox"/> Yes | <input type="checkbox"/> No* | <input checked="" type="checkbox"/> N/A |
| Locations and discharge types? | <input type="checkbox"/> Yes | <input type="checkbox"/> No* | <input checked="" type="checkbox"/> N/A |
| Impact on plant?               | <input type="checkbox"/> Yes | <input type="checkbox"/> No* | <input checked="" type="checkbox"/> N/A |
| Other:                         | <u>N/A</u>                   |                              |   |
| Comments:                      | <u>None</u>                  |                              |   |
5. Are the following records maintained at the plant:
- |                                |   |                              |   |
|--------------------------------|---|------------------------------|---|
| Equipment maintenance records  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A            |
| Operational Log                | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A            |
| Industrial contributor records | <input type="checkbox"/> Yes            | <input type="checkbox"/> No* | <input checked="" type="checkbox"/> N/A |
| Instrumentation records        | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A            |
| Sampling and testing records   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A            |
6. Are records maintained at a different location?
- Where are the records maintained? All are available on site.
7. Were the records reviewed during the inspection
- |  |                              |  |
|--|------------------------------|--|
|  | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
|--|------------------------------|--|
8. Are the records adequate and the O & M Manual current?
- |  |                              |                              |  |
|--|------------------------------|------------------------------|--|
|  | <input type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A <u>Not reviewed</u> |
|--|------------------------------|------------------------------|--|
- O&M Manual date written: July 27, 1998; updated 2006**  
**as condition of new permit**  
**Date DEQ approved O&M: (not ascertained)**
9. Are the records maintained for required 3-year period?
- |  |   |                              |
|--|---|------------------------------|
|  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* |
|--|---|------------------------------|

Comments: None

**(C) SAMPLING**

- |  |   |                              |                              |
|--|---|------------------------------|------------------------------|
| 1. Are sampling locations capable of providing representative samples? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |
| 2. Do sample types correspond to those required by the permit?         | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |
| 3. Do sampling frequencies correspond to those required by the permit? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |
| 4. Are composite samples collected in proportion to flow?              | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |
| 5. Are composite samples refrigerated during collection?               | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |
| 6. Does plant maintain required records of sampling?                   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |
| 7. Does plant run operational control tests?                           | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |

**Comments:****(D) TESTING**

1. Who performs the testing? ☒ Plant/ Lab  
☐ Central Lab  
☒ Commercial Lab - Name: Patton, Harris, Rust & Associates

***If plant performs any testing, complete 2-4.***

2. What method is used for chlorine analysis? N/A
- |   |   |                              |                              |
|---|---|------------------------------|------------------------------|
| 3. Is sufficient equipment available to perform required tests? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |
| 4. Does testing equipment appear to be clean and/or operable?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |

**Comments: Please see enclosed DEQ Laboratory Inspection Report.****(E) FOR INDUSTRIAL FACILITIES W/ TECHNOLOGY BASED LIMITS**

1. Is the production process as described in the permit application? (If no, describe changes in comments)  
☒ Yes    ☐ No\*    ☐ N/A
2. Do products and production rates correspond to the permit application? (If no, list differences in comments section)  
☒ Yes    ☐ No\*    ☐ N/A
3. Has the State been notified of the changes and their impact on plant effluent?  
☐ Yes    ☐ No\*    ☒ N/A

**Comments: None**



UNIT PROCESS: Ponds/Lagoons

1. Type: ☒ Aerated ☐ Un aerated ☐ Polishing
2. No. of cells: 2  
Number in Operation: 2
3. Color: ☒ Green ☐ D. Brown ☐ L. Brown ☐ Grey  
☐ Other
4. Odor: ☐ Septic \* ☐ Earthy ☒ None  
☐ Other:
5. System operated in: ☒ Series ☐ Parallel ☐ N/A
6. If aerated, are lagoon contents mixed adequately? ☒ Yes ☐ No \* ☐ N/A
7. If aerated, is aeration system operating properly? ☒ Yes ☐ No \* ☐ N/A
8. Evidence of following problems:  
a. Vegetation in lagoon or dikes? ☐ Yes \* ☒ No  
b. Rodents burrowing on dikes? ☐ Yes \* ☒ No  
c. Erosion? ☐ Yes \* ☒ No  
d. Sludge bars? ☐ Yes \* ☒ No  
e. Excessive foam? ☐ Yes \* ☒ No  
f. Floating material? ☐ Yes \* ☒ No
9. Fencing intact? ☐ Yes ☒ No \*
10. Grass maintained properly: ☒ Yes ☐ No
11. Level control valves working properly? ☒ Yes ☐ No \* ☐ N/A
12. Effluent discharge elevation: ☒ Top ☐ Middle ☐ Bottom
13. Available freeboard: approx. 1 ft.
14. Appearance of effluent: ☒ Good ☐ Fair ☐ Poor \*
15. Are monitoring wells present? ☒ Yes ☐ No **Not viewed**  
Are wells adequately protected from runoff? ☐ Yes ☐ No \* ☐ N/A  
Are caps on and secured? ☐ Yes ☐ No \* ☐ N/A
16. General condition: ☒ Good ☐ Fair ☐ Poor\*

**Comments:** The two aerated lagoons operate in series and receive condensate water from the evaporators. The plant distillers are occasionally cleaned with H<sub>2</sub>SO<sub>4</sub> or HNO<sub>3</sub>. This cleaning solution is placed in a tank and metered into the lagoon system. Each lagoon has a curtain to improve biological treatment and extend retention time. A backup generator has been installed to allow aeration to continue during power outages. #9 – Perimeter fencing is missing in some areas. #12 – The surface discharge point at the second lagoon is located at a fixed level.

**UNIT PROCESS: Sludge Holding Lagoon**

- |   |  |   |  |
|---|--|---|--|
| 1. Type:  | <input type="checkbox"/> Aerated                                     | <input checked="" type="checkbox"/> Unaerated | <input type="checkbox"/> Polishing   |
| 2. No. of cells:<br>Number in Operation:              | <u>1</u><br><u>1</u>   |   |  |
| 3. Color:   | <input type="checkbox"/> Green<br><input type="checkbox"/> Other     | <input type="checkbox"/> D. Brown             | <input checked="" type="checkbox"/> L. Brown <input type="checkbox"/> Grey |
| 4. Odor:  | <input type="checkbox"/> Septic *<br><input type="checkbox"/> Other: | <input type="checkbox"/> Earthy               | <input checked="" type="checkbox"/> None                                   |
| 5. System operated in:                                | <input type="checkbox"/> Series                                      | <input type="checkbox"/> Parallel             | <input checked="" type="checkbox"/> N/A                                    |
| 6. If aerated, are lagoon contents mixed adequately?  | <input type="checkbox"/> Yes   | <input type="checkbox"/> No *                 | <input checked="" type="checkbox"/> N/A                                    |
| 7. If aerated, is aeration system operating properly? | <input type="checkbox"/> Yes   | <input type="checkbox"/> No *                 | <input checked="" type="checkbox"/> N/A                                    |
| 8. Evidence of following problems:                    |  |   |  |
| a. Vegetation in lagoon or dikes?                     | <input type="checkbox"/> Yes *                                       | <input checked="" type="checkbox"/> No        |  |
| b. Rodents burrowing on dikes?                        | <input type="checkbox"/> Yes *                                       | <input checked="" type="checkbox"/> No        |  |
| c. Erosion?   | <input type="checkbox"/> Yes *                                       | <input checked="" type="checkbox"/> No        |  |
| d. Sludge bars?                                       | <input type="checkbox"/> Yes *                                       | <input checked="" type="checkbox"/> No        |  |
| e. Excessive foam?                                    | <input type="checkbox"/> Yes *                                       | <input checked="" type="checkbox"/> No        |  |
| f. Floating material?                                 | <input type="checkbox"/> Yes *                                       | <input checked="" type="checkbox"/> No        |  |
| 9. Fencing intact?                                    | <input type="checkbox"/> Yes   | <input checked="" type="checkbox"/> No *      | <b>Not fenced</b>  |
| 10. Grass maintained properly:                        | <input checked="" type="checkbox"/> Yes                              | <input type="checkbox"/> No                   |  |
| 11. Level control valves working properly?            | <input type="checkbox"/> Yes   | <input type="checkbox"/> No *                 | <input checked="" type="checkbox"/> N/A                                    |
| 12. Effluent discharge elevation:                     | <input type="checkbox"/> Top   | <input type="checkbox"/> Middle               | <input type="checkbox"/> Bottom <input checked="" type="checkbox"/> N/A    |
| 13. Available freeboard:                              | <u>approx. 3 ft.</u>   |   |  |
| 14. Appearance of effluent:                           | <input type="checkbox"/> Good  | <input type="checkbox"/> Fair                 | <input type="checkbox"/> Poor * <input checked="" type="checkbox"/> N/A    |
| 15. Are monitoring wells present?                     | <input type="checkbox"/> Yes   | <input checked="" type="checkbox"/> No        |  |
| Are wells adequately protected from runoff?           | <input type="checkbox"/> Yes   | <input type="checkbox"/> No *                 | <input checked="" type="checkbox"/> N/A                                    |
| Are caps on and secured?                              | <input type="checkbox"/> Yes   | <input type="checkbox"/> No *                 | <input checked="" type="checkbox"/> N/A                                    |
| 16. General condition:                                | <input checked="" type="checkbox"/> Good                             | <input type="checkbox"/> Fair                 | <input type="checkbox"/> Poor*   |

**Comments:** The sludge in the lagoon was dry at the time of inspection. A sludge disposal plan application has been submitted to DEQ. Due to ample storage space presently available in the sludge holding lagoon, disposal of sludge is not required at this time.

**UNIT PROCESS: Flow Measurement**

**Outfall 002**

☐ Influent      ☐ Intermediate      ☒ Effluent

1. Type measuring device: 90° v-notch weir w/ultrasonic sensor
2. Present reading: Not ascertained
3. Bypass channel? ☐ Yes      ☒ No  
     Metered? ☐ Yes      ☐ No\*      ☒ N/A
4. Return flows discharged upstream from meter? ☐ Yes      ☒ No  
     If Yes, identify:
5. Device operating properly? ☒ Yes      ☐ No\*
6. Date of last calibration: Not ascertained
7. Evidence of following problems:
  - a. Obstructions? ☐ Yes\*      ☒ No
  - b. Grease? ☐ Yes\*      ☒ No
8. General condition: ☒ Good      ☐ Fair      ☐ Poor\*

**Comments:** Outfall 002 is the discharge from the aerated lagoons. The automatic sampler at this location is tied into the flow meter for flow proportional sampling.



**UNIT PROCESS: Flow Measurement****Outfall 995****☐ Influent****☐ Intermediate****☒ Effluent**

1. Type measuring device:

None

2. Present reading:

Based on pump run times

3. Bypass channel?

☐ Yes☒ No

Metered?

☐ Yes☐ No\*☒ N/A

4. Return flows discharged upstream from meter?

☐ Yes☒ No

If Yes, identify:

N/A

5. Device operating properly?

☐ Yes☐ No\*☒ N/A

6. Date of last calibration:

N/A

7. Evidence of following problems:

a. Obstructions?

☐ Yes\*☒ No

b. Grease?

☐ Yes\*☒ No

8. General condition:

☒ Good☐ Fair☐ Poor\***Comments: Non-contact cooling water discharges through this outfall.**

**UNIT PROCESS: Flow Measurement**

**Outfall 001**

☐ Influent

☐ Intermediate

☒ Effluent

1. Type measuring device: None
2. Present reading: Based on pump run times
3. Bypass channel?  
Metered?
 

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
<input type="checkbox"/> Yes	<input type="checkbox"/> No*	<input checked="" type="checkbox"/> N/A
4. Return flows discharged upstream from meter?  
If Yes, identify: N/A

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
------------------------------	--
5. Device operating properly?
 

<input type="checkbox"/> Yes	<input type="checkbox"/> No*	<input checked="" type="checkbox"/> N/A
------------------------------	------------------------------	---
6. Date of last calibration: N/A
7. Evidence of following problems:
 

a. Obstructions?	<input type="checkbox"/> Yes*	<input checked="" type="checkbox"/> No
b. Grease?	<input type="checkbox"/> Yes*	<input checked="" type="checkbox"/> No
8. General condition:
 

<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Poor*
--	-------------------------------	--------------------------------

**Comments: Contact cooling water from the Air Pollution Scrubbers and non-contact cooling water discharge through this outfall.**

4

\*\* Transmit Conf. Report \*\*

P.1

Sep 19 2007 18:00

Fax/Phone Number	Mode	Start	Time	Page	Result	Note
912819314426	NORMAL	19,18:00	0'32"	2	# O K	

**FAX TRANSMITTAL**  
**COMMONWEALTH OF VIRGINIA**  
Department of Environmental Quality  
PIEDMONT REGIONAL OFFICE  
4949-A Cox Road  
GLEN ALLEN, VIRGINIA 23060-6296

INTERNET: WWW.DEQ.VIRGINIA.GOV

Phone: (804) 527-5020

Fax: (804) 527-5106

TO: B. H. Black  
FAX # \_\_\_\_\_  
FROM: Denise Mosca

Date: 9-19-07  
Pages: 2  
Phones: \_\_\_\_\_

Subject: re: Alum addition to Omega's ww lagoon + its eventual  
presence in Omega Sludge to be land applied

Comments:

Please project the volume of the sludge and percent  
solids - Here is an example of an aluminum loading  
calculation. I'd like for you to do for the Omega sludge -

**EXAMPLE ALUMINUM LOADING CALCULATIONS FROM WTP RESIDUALS**

The below calculations provide demonstration of the preapplication Al levels in soils and the percent increase in Al from the application of 15 dry tons/yr of WTP residuals. This information is beneficial to track the baseline conditions and subsequent changes to site soils from land application.

**Assume:**

WTP Residuals Al level	-	78,500 mg/kg dry wt.
Soil bulk density (clay)	-	1.31 gms/cc soil
Density of soil 6 in. x 1 acre	-	$1.7857 \times 10^6$ lbs/ac/6 in
Two Soils Al background concentration	-	6,760 mg/kg dry wt to
	-	31,800 mg/kg dry wt
WTP loading limit	-	15 dry tons/acre

**Mass of Al/acre in the top 6 inches of soil:**

$$\frac{6,760 \text{ parts Al}}{10^6 \text{ lbs}} \times 1.7857 \times 10^6 \text{ lbs/acre/6 in} = 12,071 \text{ lb/acre}$$

$$\frac{31,800 \text{ parts Al}}{10^6 \text{ lbs}} \times 1.7857 \times 10^6 \text{ lbs/acre/6 in} = 56,785 \text{ lb/acre}$$

**Mass loading of Al/acre per 15 dry ton loading:**

$$\frac{15 \text{ dry tons}}{\text{ton}} \times \frac{2,000 \text{ lbs}}{\text{ton}} \times \frac{78,500 \text{ Al}}{10^6 \text{ soil}} = 2,355 \text{ lb/acre}$$

**Percent Increase in Aluminum In Top 6 inches of Soil:**

20 % for the soil with the lowest Al levels

4% for the soil with the highest Al levels

**Notes:**

If one assumes the clay is the same concentration between 6 to 12 inches as above, then the percent increase in the soil aluminum would be 2 and 10 percent for the two soils respectively. Often, the clay content of a soil will be greater in the B horizon, than the A horizon of the soil profile.

EPA has provided a recommended maximum lifetime limit of Al loading to soils of 4,113 lbs/acre without further investigation. This value is based upon the tolerances of sensitive crops, mostly fruits and vegetables, grown on soils with low capacities for retaining elements in unavailable forms. (EPA Process Design Manual - Land Treatment of Municipal Wastewater (EPA 625/1-81-013), Table 4-5, pg. 4-9) Other than the above, EPA has not provided any guidance on limiting Al loading to soils.



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

### PIEDMONT REGIONAL OFFICE

4949-A Cox Road, Glen Allen, Virginia 23060

(804) 527-5020 Fax (804) 527-5106

[www.deq.virginia.gov](http://www.deq.virginia.gov)

L. Preston Bryant, Jr.  
Secretary of Natural Resources

David K. Paylor  
Director

Gerard Seeley, Jr.  
Regional Director

September 13, 2007

Omega Protein, Inc.  
P.O. Box 175  
Reedville, Virginia 22539

Attn: Lyell Jett, General Manager

RE: VPA Permit Issuance VPA01428

Dear Mr. Jett:

The VPA application for the sludge from the treatment lagoon has been technically reviewed and the following comments were generated:

There are multiple sludge characterizations from PHR&A, Virginia Tech and Clemson U. in the application package. Please compile a single representative data set that is reflected on Form C 4 a and b (page C-1.3). For consistency, the nutrient numbers from Clemson that DCR used for the NMP should be used on Form C 4 a and b (page C-1.3). In the supplement to answer Form C #8 Land Area Determination, please use these nutrient values and the values you select for Form C 4 a and b for the list of parameters for calculating the required land area for consistency throughout the application. This may include updating the site life calculations for the metals. Please also provide sodium and chloride loadings, as specified in Form C #8 Land Area Determination.

The PAN calculations should be revised in accordance with the NMP as follows:

$$\text{PAN/DT sludge} = 20[(F)(\% \text{ Org-N}) + (V)(\% \text{ NH}_3\text{-N})]$$

Where:

F = mineralization of organic nitrogen in sludge within the first year of application (or subsequent years if mineralization is not complete within first year) = 0.1

V = Amount of NH<sub>3</sub>-N not volatilized as determined by: (1) the degree of incorporation and the waiting period before incorporation, at or following land application, and (2) the pH of the sludge = 0.5

Second year = PAN/DT Sludge - 0.05\* % Org N

Third year = PAN/DT Sludge - 0.03\* % Org N

Org-N = TKN - NH<sub>3</sub>-N

Omega VPA, Page 2

Were the buffers from the improved roadways (25 ft) used in the determination of the land area?

If you have any questions regarding this matter, please contact me at 805-527-5027 or [dmmosca@deq.virginia.gov](mailto:dmmosca@deq.virginia.gov).

Sincerely,

  
Denise Mosca  
Environmental Specialist II

cc: W. Black, ENPRO



Theodore Schultz  
Regulatory Compliance

RECEIVED

OCT 18 2007

PRO

October 12, 2007

VA 0003867

Mike Dare  
Water Inspector  
Department of Environmental Quality  
4949-A Cox Road  
Glen Allen, VA 23060-6296

Re: Response to Laboratory Inspection deficiencies

Dear Mr. Dare:

After careful review of the Laboratory Section of your inspection of September 13, 2007, the following changes/corrections have been made to address the issues raised.

Deficiency	Response
Laboratory Records: "DEQ check of permittee August 2007 DMR calibration not performed due to data from July 31, 2007 and Sept. 1/2, 2007 was included in DMR calculations"	Future DMR submissions will only contain data for the 'normal' calendar month being reported and without regard to the ISO 8601 week date standard.
pH: "As a check to ensure proper operation of the instrument, a buffer of 7 SU should be analyzed after calibration is performed"	The daily pH calibration log sheet has been modified to record the value of a pH 7 "check" analysis after the calibration procedure. This value is compared to NIST value of the pH 7 buffer and must be within +/- 0.1 SU. All analysts have been informed of this requirement.
pH: "Buffer temperature should be measured and documented as required by Standard Methods – method of analysis for pH"	The daily pH calibration log sheet has been modified to record the temperature of the calibration buffers. All analysts have been informed of this requirement.



Theodore Schultz  
*Regulatory Compliance*

October 12, 2007

Mike,

The following comments should NOT be construed as part of the attached official response to your Laboratory Inspection of 9/13/07. They are intended only as constructive criticism to your inspection process.

Item 11 of the Inspection concerning the temperature of the buffers should be changed. Editions 18 – 20 of Standard Methods describes the determination of pH using a "manual" pH meter. The calibration procedure was written for the use of two buffers. The first, at pH 7, is used to determine the isopotential point (i.e. 0 mV); which is then manually set on the pH meter. The second, at a different pH, is used to determine the slope. Here the temperature is important as the pH value varies according to it (see Table II p. 4-68). This is also manually set on the meter.

On a modern "solid state" meter with ATC these set points are done automatically. The temperature of the buffer solutions need not be recorded, as the analyst can not use them to adjust the pH value. In fact, recording them implies a usage that was not made.

In our specific case the question: "Is the temperature of the buffer solutions and samples measured prior to testing?"; yes it is – by the instrument.

Sincerely,

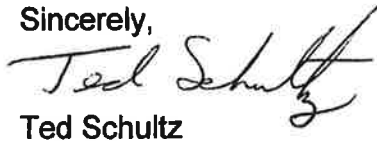


Ted Schultz



If you need any further information concerning this matter, please contact me at your convenience.

Sincerely,

A handwritten signature in cursive script that reads "Ted Schultz". The signature is written in dark ink and is positioned above the printed name.

Ted Schultz

**Mosca,Denise**

**From:** Bill Black [bill@enprotexas.net]  
**Sent:** Thursday, November 15, 2007 4:43 PM  
**To:** Mosca,Denise  
**Cc:** Bill  
**Subject:** RE: Omega Protein, Outfall 003

VA0003867

R-G-R

083 Page V-1 to V-9  
Form 2C

Thanks Denise,  
We will take the winter temp now.

Further, in looking through the file, I noticed that I have a full Attachment D analyses. Some of the Attachment D parameters aren't listed on forms V1 thru V9. So I could scan the two page analysis and send it to you electronically, if this would be satisfactory.

Bill Black  
Environmental Professionals, Inc (EnPRO)  
525 N Sam Houston Pkwy E, Ste 248  
Houston, TX 77060  
[bill@enprotexas.net](mailto:bill@enprotexas.net)  
281-931-4425  
Fax 281-931-4426

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**From:** Mosca,Denise [mailto:dmmosca@deq.virginia.gov]  
**Sent:** Thursday, November 15, 2007 2:51 PM  
**To:** Bill Black  
**Subject:** RE: Omega Protein, Outfall 003

Hi Bill—  
I did get your email and could read your attachment just fine. I will look it over in the next few days. I saw you were missing the winter temperature—you could take that now—  
Denise

Denise Mosca  
Environmental Specialist II  
DEQ-Piedmont Regional Office  
4949-A Cox Road,  
Glen Allen, Va. 23060  
(804) 527-5027  
fax (804) 527-5106

-----Original Message-----

**From:** Bill Black [mailto:bill@enprotexas.net]  
**Sent:** Thursday, November 15, 2007 3:37 PM  
**To:** Mosca,Denise  
**Cc:** Bill  
**Subject:** Omega Protein, Outfall 003

Hi Denise,  
I have finally completed pages V-1 through V-9 for the Outfall 003 that you asked for, to supplement the application that was submitted for the current permit. Since the EPA form is now "editable", I can submit it to you electronically.

So much time has elapsed since you first asked for it that I am not sure if we have analyzed for all the

proper parameters. If there is anything else you want analyzed, let us know as soon as possible because we are at the end of the year where fishing is very "spotty". This week they were only able to catch fish one day.

Also, since some servers block emails that contain large files, please confirm back to me that you received this.

Bill Black  
Environmental Professionals, Inc (EnPRO)  
525 N Sam Houston Pkwy E, Ste 248  
Houston, TX 77060  
[bill@enprotexas.net](mailto:bill@enprotexas.net)  
281-931-4425  
Fax 281-931-4426

No virus found in this outgoing message.  
Checked by AVG Free Edition.  
Version: 7.5.503 / Virus Database: 269.15.32/1131 - Release Date: 11/14/2007 4:54 PM

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Checked by AVG Free Edition.  
Version: 7.5.503 / Virus Database: 269.15.32/1131 - Release Date: 11/14/2007 4:54 PM

No virus found in this outgoing message.  
Checked by AVG Free Edition.  
Version: 7.5.503 / Virus Database: 269.15.32/1131 - Release Date: 11/14/2007 4:54 PM

FACILITY NAME: Omega Protein, Inc.  
 ADDRESS: P.O. Box 175  
 Reedville, VA 22539

Attachment D  
 Page 1 of 2

DEPARTMENT OF ENVIRONMENTAL QUALITY  
 WATER QUALITY MONITORING

OUTFALL NO. 003

CASRN#	CHEMICAL	EPA ANALYSIS NO.	QUANTIFICATION LEVEL <sup>(1)</sup>	REPORTING RESULTS	SAMPLE TYPE <sup>(2)</sup>	SAMPLE FREQUENCY
DISSOLVED METALS						
7440-28-0	Thallium	(4)	(5)	<0.01	G	(3)
PESTICIDES/PCB'S						
959-98-8	Alpha-Endosulfan	608	0.1	<0.05	G or C	(3)
33213-65-9	Beta-Endosulfan	608	0.1	<0.05	G or C	(3)
1031-07-8	Endosulfan Sulfate	608	0.1	<0.05	G or C	(3)
7421-93-4	Endrin Aldehyde	(4)	(5)	<0.05	G or C	(3)
1024-57-3	Heptachlor Epoxide	(4)	(5)	<0.05	G or C	(3)
319-84-6	Hexachlorocyclohexane Alpha-BHC	(4)	(5)	<0.05	G or C	(3)
319-85-7	Hexachlorocyclohexane Beta-BHC	(4)	(5)	<0.05	G or C	(3)
1336-36-3	PCB Total	608	7.0	<0.05	G or C	(3)
BASE NEUTRAL EXTRACTABLES						
92-87-5	Benzidine	(4)	(5)	<5	G or C	(3)
111-44-4	Bis 2-Chloroethyl Ether ✓	(4)	(5)	<5	G or C	(3)
39638-32-9	Bis 2-Chloroisopropyl Ether	(4)	(5)	<5	G or C	(3)
91-58-7	2-Chloronaphthalene	(4)	(5)	<5	G or C	(3)
84-74-2	Dibutyl phthalate (synonym = Di-n-Butyl Phthalate)	625	10.0	<5	G or C	(3)
91-94-1	3,3-Dichlorobenzidine	(4)	(5)	<5	G or C	(3)
131-11-3	Dimethyl phthalate	(4)	(5)	<5	G or C	(3)
122-66-7	1,2-Diphenylhydrazine	(4)	(5)	<5	G or C	(3)
118-74-1	Hexachlorobenzene	(4)	(5)	<5	G or C	(3)
87-68-3	Hexachlorobutadiene	(4)	(5)	<5	G or C	(3)
77-47-4	Hexachlorocyclopentadiene	(4)	(5)	<5	G or C	(3)
67-72-1	Hexachloroethane	(4)	(5)	<5	G or C	(3)
62-75-9	N-Nitrosodimethylamine	(4)	(5)	<5	G or C	(3)
621-64-7	N-Nitrosodi-n-propylamine	(4)	(5)	<5	G or C	(3)
86-30-6	N-Nitrosodiphenylamine	(4)	(5)	<5	G or C	(3)

FACILITY NAME: Omega Protein, Inc.  
ADDRESS: P.O. Box 175  
Reedville, VA 22539

Attachment D  
Page 2 of 2

DEPARTMENT OF ENVIRONMENTAL QUALITY  
WATER QUALITY MONITORING

OUTFALL NO. 003

CASRN#	CHEMICAL	EPA ANALYSIS NO.	QUANTIFICATION LEVEL <sup>(1)</sup>	REPORTING RESULTS	SAMPLE TYPE <sup>(2)</sup>	SAMPLE FREQUENCY
VOLATILES						
107-02-8	Acrolein	(4)	(5)	<25	G	(3)
107-13-1	Acrylonitrile	(4)	(5)	<25	G	(3)
108-90-7	Chlorobenzene (synonym = monochlorobenzene)	(4)	(5)	<5	G	(3)
156-60-5	1,2-trans-dichloroethylene	(4)	(5)	<5	G	(3)
78-87-5	1,2-Dichloropropane	(4)	(5)	<5	G	(3)
542-75-6	1,3-Dichloropropene	(4)	(5)	<5	G	(3)
74-83-9	Methyl Bromide	(4)	(5)	<5	G	(3)
79-34-5	1,1,2,2-Tetrachloroethane	(4)	(5)	<5	G	(3)
79-00-5	1,1,2-Trichloroethane	(4)	(5)	<5	G	(3)
ACID EXTRACTABLES						
51-28-5	2,4-Dinitrophenol	(4)	(5)	<20	G or C	(3)
534-52-1	2-Methyl-4,6-Dinitrophenol	(4)	(5)	<20	G or C	(3)

Ted Schultz  
Name of Principal Exec. Officer or Authorized Agent/Title

Ted Schultz 11/17/06  
Signature of Principal Officer or Authorized Agent/Date

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. Sec. 1001 and 33 U.S.C. Sec. 1319. (Penalties under these statutes may include fines up to \$10,000 and or maximum imprisonment of between 6 months and 5 years.)

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages.  
SEE INSTRUCTIONS.

EPA I.D. NUMBER (copy from Item 1 of Form 1)  
VA 0003867

V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)											OUTFALL NO. 003			
PART A – You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.														
1. POLLUTANT	2. EFFLUENT							3. UNITS (specify if blank)		4. INTAKE (optional)				
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN- TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES		
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS			
a. Biochemical Oxygen Demand (BOD)	960	1,454	--	--	408	464	8	mg/l	kg/d					
b. Chemical Oxygen Demand (COD)	471	714	--	--	--	--	2	mg/l						
c. Total Organic Carbon (TOC)	173	263	--	--	--	--	2	mg/l						
d. Total Suspended Solids (TSS)	37	56	--	--	11.2	12.8	8	mg/l	kg/d					
e. Ammonia (as N)	420	636	--	--	173	197	8	mg/l	kg/d					
f. Flow	VALUE 0.4		VALUE		VALUE			mgd		VALUE				
g. Temperature (winter)	VALUE NA		VALUE		VALUE			°C		VALUE				
h. Temperature (summer)	VALUE 39		VALUE		VALUE		7	°C		VALUE				
i. pH	MINIMUM 8.5	MAXIMUM 8.9	MINIMUM	MAXIMUM			10	STANDARD UNITS						
PART B – Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.														
1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN- TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Bromide (24959-67-9)		X												
b. Chlorine, Total Residual		X												
c. Color		X												
d. Fecal Coliform		X	BQL						1					
e. Fluoride (16984-48-8)		X												
f. Nitrate-Nitrite (as N)	X		0.51	0.78	--	--	0.17	0.20	8	mg/l	kg/d			

## ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (optional)						
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN- TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES				
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS					
g. Nitrogen, Total Organic (as N)	X		435	658	--	--	187	213	8	mg/l	kg/d							
h. Oil and Grease	X		62	94	--	--	20.4	23.1	8	mg/l	kg/d							
i. Phosphorus (as P), Total (7723-14-0)	X		1.2	1.8	--	--	0.5	0.6	8	mg/l	kg/d							
j. Radioactivity																		
(1) Alpha, Total		X																
(2) Beta, Total		X																
(3) Radium, Total		X																
(4) Radium 226, Total		X																
k. Sulfate (as SO <sub>4</sub> ) (14808-79-8)		X																
l. Sulfide (as S)		X																
m. Sulfite (as SO <sub>3</sub> ) (14265-45-3)		X																
n. Surfactants		X																
o. Aluminum, Total (7429-90-5)		X																
p. Barium, Total (7440-39-3)		X																
q. Boron, Total (7440-42-8)		X																
r. Cobalt, Total (7440-48-4)		X																
s. Iron, Total (7439-89-6)		X																
t. Magnesium, Total (7439-95-4)		X																
u. Molybdenum, Total (7439-98-7)		X																
v. Manganese, Total (7439-96-5)		X																
w. Tin, Total (7440-31-5)		X																
x. Titanium, Total (7440-32-6)		X																

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
VA 0003867	003

CONTINUED FROM PAGE 3 OF FORM 2-C

**PART C -** If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (*secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions*), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (*all 7 pages*) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
<b>METALS, CYANIDE, AND TOTAL PHENOLS</b>															
1M. Antimony, Total (7440-36-0)			X												
2M. Arsenic, Total (7440-38-2)			X												
3M. Beryllium, Total (7440-41-7)			X												
4M. Cadmium, Total (7440-43-9)		X		0.039	0.058	--	--	--	--	2	mg/l	kg/d			
5M. Chromium, Total (7440-47-3)		X		0.013	0.02	--	--	--	--	2	mg/l	kg/d			
6M. Copper, Total (7440-50-8)		X		0.198	0.30	--	--	--	--	2	mg/l	kg/d			
7M. Lead, Total (7439-92-1)		X		0.028	0.042	--	--	--	--	2	mg/l	kg/d			
8M. Mercury, Total (7439-97-6)			X												
9M. Nickel, Total (7440-02-0)		X		0.14	0.22	--	--	--	--	2	mg/l	kg/d			
10M. Selenium, Total (7782-49-2)		X		0.019	0.028	--	--	--	--	2	mg/l	kg/d			
11M. Silver, Total (7440-22-4)		X		0.0005	0.0008	--	--	--	--	2	mg/l	kg/d			
12M. Thallium, Total (7440-28-0)			X	BQL						1	mg/l				
13M. Zinc, Total (7440-66-6)		X		0.111	0.16	--	--	--	--	2	mg/l	kg/d			
14M. Cyanide, Total (57-12-5)			X	BQL						1	mg/l				
15M. Phenols, Total		X		0.32	0.48	--	--	--	--	2	mg/l	kg/d			
<b>DIOXIN</b>															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											



CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVR. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN- TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)			X	<0.025						1	mg/l				
2V. Acrylonitrile (107-13-1)			X	<0.025						1	mg/l				
3V. Benzene (71-43-2)			X												
4V. Bis (Chloro- methyl) Ether (542-88-1)			X												
5V. Bromoform (75-25-2)			X												
6V. Carbon Tetrachloride (56-23-5)			X												
7V. Chlorobenzene (108-90-7)			X	<0.005						1	mg/l				
8V. Chlorodi- bromomethane (124-48-1)			X												
9V. Chloroethane (75-00-3)			X												
10V. 2-Chloro- ethylvinyl Ether (110-75-8)			X												
11V. Chloroform (67-66-3)			X												
12V. Dichloro- bromomethane (75-27-4)			X												
13V. Dichloro- difluoromethane (75-71-8)			X												
14V. 1,1-Dichloro- ethane (75-34-3)			X												
15V. 1,2-Dichloro- ethane (107-06-2)			X	<0.005						1	mg/l				
16V. 1,1-Dichloro- ethylene (75-35-4)			X												
17V. 1,2-Dichloro- propane (78-87-5)			X	<0.005						1	mg/l				
18V. 1,3-Dichloro- propylene (542-75-6)			X	<0.005						1	mg/l				
19V. Ethylbenzene (100-41-4)			X												
20V. Methyl Bromide (74-83-9)			X												
21V. Methyl Chloride (74-87-3)			X												

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT								4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES	
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS		
GC/MS FRACTION – VOLATILE COMPOUNDS (continued)																
22V. Methylene Chloride (75-09-2)			X													
23V. 1,1,2,2-Tetrachloroethane (79-34-5)			X	<0.005						1	mg/l					
24V. Tetrachloroethylene (127-18-4)			X													
25V. Toluene (108-88-3)			X													
26V. 1,2-Trans-Dichloroethylene (156-60-5)			X													
27V. 1,1,1-Trichloroethane (71-55-6)			X													
28V. 1,1,2-Trichloroethane (79-00-5)			X	<0.005						1	mg/l					
29V. Trichloroethylene (79-01-6)			X													
30V. Trichlorofluoromethane (75-69-4)			X													
31V. Vinyl Chloride (75-01-4)			X													
GC/MS FRACTION – ACID COMPOUNDS																
1A. 2-Chlorophenol (95-57-8)			X													
2A. 2,4-Dichlorophenol (120-83-2)			X													
3A. 2,4-Dimethylphenol (105-67-9)			X													
4A. 4,6-Dinitro-O-Cresol (534-52-1)			X													
5A. 2,4-Dinitrophenol (51-28-5)			X	<0.020						1	mg/l					
6A. 2-Nitrophenol (88-75-5)			X													
7A. 4-Nitrophenol (100-02-7)			X													
8A. P-Chloro-M-Cresol (59-50-7)			X													
9A. Pentachlorophenol (87-86-5)			X													
10A. Phenol (108-95-2)			X													
11A. 2,4,6-Trichlorophenol (88-05-2)			X													

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN- TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)			X												
2B. Acenaphthylene (208-96-8)			X												
3B. Anthracene (120-12-7)			X												
4B. Benzdine (92-87-5)			X	<0.005						1	mg/l				
5B. Benzo (a) Anthracene (56-55-3)			X												
6B. Benzo (a) Pyrene (50-32-8)			X												
7B. 3,4-Benzo- fluoranthene (205-99-2)			X												
8B. Benzo (ghi) Perylene (191-24-2)			X												
9B. Benzo (k) Fluoranthene (207-08-9)			X												
10B. Bis (2-Chloro- ethoxy) Methane (111-91-1)			X												
11B. Bis (2-Chloro- ethyl) Ether (111-44-4)			X	<0.005						1	mg/l				
12B. Bis (2- Chloroisopropyl) Ether (102-80-1)			X	<0.005						1	mg/l				
13B. Bis (2-Ethyl- hexyl) Phthalate (117-81-7)			X												
14B. 4-Bromophenyl Phenyl Ether (101-55-3)			X												
15B. Butyl Benzyl Phthalate (85-68-7)			X												
16B. 2-Chloro- naphthalene (91-58-7)			X	<0.005						1	mg/l				
17B. 4-Chloro- phenyl Phenyl Ether (7005-72-3)			X												
18B. Chrysene (218-01-9)			X												
19B. Dibenzo (a,h) Anthracene (53-70-3)			X												
20B. 1,2-Dichloro- benzene (95-50-1)			X												
21B. 1,3-Di-chloro- benzene (541-73-1)			X												

CONTINUED FROM PAGE V-6

CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT								4. UNITS			5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES		
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS			
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (continued)																	
22B. 1,4-Dichlorobenzene (106-46-7)			X														
23B. 3,3-Dichlorobenzidine (91-94-1)			X	<0.005						1	mg/l						
24B. Diethyl Phthalate (84-66-2)			X														
25B. Dimethyl Phthalate (131-11-3)			X	<0.005						1	mg/l						
26B. Di-N-Butyl Phthalate (84-74-2)			X	<0.005						1	mg/l						
27B. 2,4-Dinitrotoluene (121-14-2)			X														
28B. 2,6-Dinitrotoluene (606-20-2)			X														
29B. Di-N-Octyl Phthalate (117-84-0)			X														
30B. 1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)			X	<0.005						1	mg/l						
31B. Fluoranthene (206-44-0)			X														
32B. Fluorene (86-73-7)			X														
33B. Hexachlorobenzene (118-74-1)			X	<0.005						1	mg/l						
34B. Hexachlorobutadiene (87-68-3)			X	<0.005						1	mg/l						
35B. Hexachlorocyclopentadiene (77-47-4)			X	<0.005						1	mg/l						
36B. Hexachloroethane (67-72-1)			X	<0.005						1	mg/l						
37B. Indeno (1,2,3-cd) Pyrene (193-39-5)			X														
38B. Isophorone (78-59-1)			X														
39B. Naphthalene (91-20-3)			X														
40B. Nitrobenzene (98-95-3)			X														
41B. N-Nitrosodimethylamine (62-75-9)			X	<0.005						1	mg/l						
42B. N-Nitrosodi-N-Propylamine (621-64-7)			X	<0.005						1	mg/l						

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT								4. UNITS		5. INTAKE (optional)			
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN- TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES		
				(1)	(2)	(1)	(2)	(1)	(2)				(1)	(2)			
				CONCENTRATION	MASS	CONCENTRATION	MASS	CONCENTRATION	MASS				CONCENTRATION	MASS			
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (continued)																	
43B. N-Nitro- sodiphenylamine (86-30-6)			X	<0.005						1	mg/l						
44B. Phenanthrene (85-01-8)			X														
45B. Pyrene (129-00-0)			X														
46B. 1,2,4-Tri- chlorobenzene (120-82-1)			X														
GC/MS FRACTION – PESTICIDES																	
1P. Aldrin (309-00-2)			X														
2P. α-BHC (319-84-6)			X														
3P. β-BHC (319-85-7)			X														
4P. γ-BHC (58-89-9)			X														
5P. δ-BHC (319-86-8)			X														
6P. Chlordane (57-74-9)			X														
7P. 4,4'-DDT (50-29-3)			X														
8P. 4,4'-DDE (72-55-9)			X														
9P. 4,4'-DDD (72-54-8)			X														
10P. Dieldrin (60-57-1)			X														
11P. α-Endosulfan (115-29-7)			X														
12P. β-Endosulfan (115-29-7)			X														
13P. Endosulfan Sulfate (1031-07-8)			X														
14P. Endrin (72-20-8)			X														
15P. Endrin Aldehyde (7421-93-4)			X														
16P. Heptachlor (76-44-8)			X														

EPA I.D. NUMBER (copy from Item 1 of Form 1)

OUTFALL NUMBER

VA 0003867

003

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT								4. UNITS		5. INTAKE (optional)			
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCEN- TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES		
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS			
GC/MS FRACTION - PESTICIDES (continued)																	
17P. Heptachlor Epoxide (1024-57-3)			X														
18P. PCB-1242 (53469-21-9)			X	<0.005						1	mg/l						
19P. PCB-1254 (11097-69-1)			X	<0.005						1	mg/l						
20P. PCB-1221 (11104-28-2)			X	<0.005						1	mg/l						
21P. PCB-1232 (11141-16-5)			X	<0.005						1	mg/l						
22P. PCB-1248 (12672-29-6)			X	<0.005						1	mg/l						
23P. PCB-1260 (11096-82-5)			X	<0.005						1	mg/l						
24P. PCB-1016 (12674-11-2)			X	<0.005						1	mg/l						
25P. Toxaphene (8001-35-2)			X														

VA0003867  
R-6-R4

December 6, 2007

Ms Denise Mosca  
Virginia Department of Environmental Quality  
4949-A Cox Road  
Glen Allen, Virginia 23060

Re: Fourth Quarterly Report of Progress, 2007--regarding Phosphorus  
VA0003867

Dear Ms Mosca,

The full scale experiment using heterotrophic bio-augmentation to reduce phosphorus in the 002 discharge did not meet our expectations. Therefore, we are implementing the alum option.

Alum treatment is considered a practical and proven method for phosphorus removal. Alum creates a phosphorus precipitate whereby phosphorus becomes bound chemically with aluminum. Therefore the sludge can not release phosphorus back into the water column as it has been doing over the winter

Sincerely,

Bob LaBruzzo  
General Manager

cc/ William Black



## *Final Compliance Plans*

*Omega Protein, Reedville, VA*

*Permit VA0003867*

December 2007

Omega Protein's VPDES permit VA0003867 establishes certain discharge limits for annual nutrient loading at outfall 996, fecal coliform/enterococci at outfall 002 and total recoverable copper/silver at outfall 995. Section B.16 of the permit provides a four year compliance period for each contaminant and requires that final plans and specifications be submitted within 24 months of the permit effective date which Omega considers to be the date the permit was received, December 10, 2005. Omega Protein, Reedville, has developed final plans for each contaminant and each outfall. A discussion and details are provided in the following paragraphs.

### **Outfall 002**

Compliance for the fecal coliform and enterococci discharges at outfall 002 will be achieved with disinfection by Ultraviolet light (UV) which is a technology that has been proven at sanitary treatments plants. Omega has selected a Calgon model C<sup>3</sup> 150 PS, packaged Ultraviolet Disinfection System, or equivalent. Since the UV system requires a water with a high transmissivity, a Yardney multi-media filtration system, MM-5460-4A has been installed to remove suspended solids such as algae. The ultraviolet disinfection system will be installed at least six months prior to the end of the compliance period.

### **Outfall 996**

Compliance with the annual nutrient loading limit at outfall 996 will be accomplished by eliminating the outfall 001 which accounted for more than 90% of the Nitrogen discharges. The 001 outfall was Cockrell Creek water that was pumped through



"Scrubbers" and returned to the Creek through outfall 001. The purpose of the scrubbers was to remove particulate from the exhaust of the two Dryers. However, the scrubber incidentally also removed nitrogen from the exhaust because of the presence of Ammonia in the exhaust (Ammonia is sufficiently soluble to allow a transfer from the gas phase to the liquid phase in the scrubber). A change in Omega's process was necessary in order to eliminate the scrubbers and the discharge.

Omega recently selected Airless dryers, rated at 32,000 pounds of water evaporative capacity, to replace current flame Dryers, 1R and 5. The airless dryers are manufactured by Dupps Manufacturing in Germantown, Ohio. Airless dryers operate differently from the flame dryers in that a heat exchanger is utilized to separate flue gas from "dryer air" whereby the drying drum does not receive flue gases. Thus, dryer air is the only exhaust from the drum and is partially recirculated after a high efficiency cyclone has removed airborne particulates. Dryer air that is not recirculated is sent to a waste heat evaporator for heat reclamation which condenses the vapor laden air. The Dupps dryers will be installed by May 2009.

Non-condensable gases from the waste heat evaporator will be ducted to the boilers for combustion/incineration. Thus, no dryer air is vented to atmosphere. The system of high efficiency cyclone-heat reclamation-boiler combustion, precludes the need for scrubbers.

Thus, the only plant-wide nutrient discharges will be in outfall 002, from the treatment pond. Through the end of November 2007, year-to-date discharges of nitrogen and phosphorus in outfall 002 were 1850 pounds and 350 pounds respectively. This loading could possibly increase as much as an additional 10% before the fishing season is closed, before Christmas. Even with a 10% increase, these loads are significantly less than the current limits of 21,202 pounds and 1,589 pounds respectively. With regard to expected future nutrient discharges, the heat reclamation from the Dupps dryers is expected to increase condensate flow to the treatment pond by about 30 to 35%. An estimate of future nutrient discharges, considering the flow increase, allowances for larger ammonia concentrations due to increased loading to the pond and the control of phosphorus by alum additions, would reasonably be easily in compliance.

## **Outfall 995**

Outfall 995 is the discharge of once-through cooling water that is pumped from and returned to Cockrell Creek. Omega is unable to determine a source of silver in the discharge. We do know the source of copper, however. Background levels of copper in Cockrell Creek are elevated due to the addition of copper in anti-foulant paints that many, many boats (private and commercial) use. In order to avoid discharging copper

and silver, Omega will replace the once-through cooling water with a cooling tower. Instead of once-through Creek water, Omega will install cooling towers that will cool hot water from the heat exchangers and return back to the heat exchangers—recirculation. The temperatures involved are not extraordinary, therefore, a "standard" cooling system will be purchased from a manufacturer like Baltimore Aircoil Company (BAC). This cooling system will be installed by May 2009.

*RV LaBuzzo*  
*General Manager*  
*Omega Protein - Reedville*

December 6, 2007

Ms Denise Mosca  
Virginia Department of Environmental Quality  
4949-A Cox Road  
Glen Allen, Virginia 23060

Re: Fourth Quarterly Report of Progress, 2007--regarding Phosphorus  
VA0003867

Dear Ms Mosca,

The full scale experiment using heterotrophic bio-augmentation to reduce phosphorus in the 002 discharge did not meet our expectations. Therefore, we are implementing the alum option.

Alum treatment is considered a practical and proven method for phosphorus removal. Alum creates a phosphorus precipitate whereby phosphorus becomes bound chemically with aluminum. Therefore the sludge can not release phosphorus back into the water column as it has been doing over the winter

Sincerely,

Bob LaBruzzo  
General Manager

cc/ William Black

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DEC 17 2007  
PRO



December 6, 2007

Ms Denise Mosca  
Virginia Department of Environmental Quality  
4949-A Cox Road  
Glen Allen, Virginia 23060

Re: Fourth Quarterly Report of Progress, 2007--regarding Phosphorus  
VA0003867

Dear Ms Mosca,

The full scale experiment using heterotrophic bio-augmentation to reduce phosphorus in the 002 discharge did not meet our expectations. Therefore, we are implementing the alum option.

Alum treatment is considered a practical and proven method for phosphorus removal. Alum creates a phosphorus precipitate whereby phosphorus becomes bound chemically with aluminum. Therefore the sludge can not release phosphorus back into the water column as it has been doing over the winter.

Sincerely,

Bob LaBruzzo  
General Manager

cc/ William Black

VA0003867  
R-6-R4

**Mosca,Denise**

---

**From:** Childress,Lisa  
**Sent:** Thursday, December 13, 2007 5:37 PM  
**To:** Bill Black  
**Cc:** Linderman,Curtis; Bell,James; Lupini,Frank; Kyle,James; Stone,Richard; King,Boots; Mosca,Denise  
**Subject:** Final Compliance Plans

Bill:

Denise Mosca forwarded to me a copy of Omega's final compliance plan to meet certain discharge limits in the VPDES permit VA0003867. It appears from the compliance plan as well as a prior e-mail to me (October 23, 2007) that Omega is planning many process changes at the plant. I would again like to re-iterate to you that these process changes are physical changes to the plant's operation and trigger the modification definition for air permitting. It would have been advantageous to all parties involved if Omega had submitted a Form 7 air permitting application detailing the changes and received a modification to the air permit(s) prior to finalizing the water compliance plan. Therefore, be advised that when Omega does submit these process changes for review to air permitting that it may result in changes that impact the water compliance plan. To lessen these impacts, the following are items that Omega should be prepared to address and plan for:

- Regarding the elimination of the scrubbers-  
Documentation from the manufacturer regarding the amount of emissions from the dryer air, a vendor guarantee for the proposed cyclone's control efficiency, a guarantee for the boilers' temperature, a monitoring plan for ensuring that the boilers operate at the required temperature, and the proposed control of cyanide and estimation of emissions. The boilers BW1 and BW2 will need to be configured so that the non-condensable gases are introduced into the flame zone directly in order to receive credit for control efficiency. Duct work should be constructed so that performance testing is able to be conducted for boilers, BW1 and BW2, to demonstrate incineration efficiency of the non-condensable gases.
- Best Available Control Technology review-  
Omega needs to make provisions for alternate controls if the cyclone and/or gas incineration by the boilers does not meet BACT standards. A scrubber and/or fabric filter may need to be installed in addition to the cyclone. Other controls of the non-condensable gases may be required as well.
- Cooling Towers-  
Emissions from the cooling towers will need to be calculated and an application submitted for them to be reviewed. AP-42 contains factors for cooling towers that can be used. Also, the manufacturer may have emissions data for them. Also, since the water is re-circulated, Omega needs to detail the plans to keep the towers from plugging and how they plan to handle this situation if it occurs. Issues with the cooling towers may result in keeping the outfall discharges.

Omega is reminded that construction and/or modification of a source subject to permitting requirements in Chapter 80 of the Virginia Regulations for the Control and Abatement of Air Pollution, without a permit, can result in enforcement action.

If you have any questions or comments regarding this e-mail, please feel free to contact me.

Regards,

Lisa A. Childress  
Environmental Engineer Senior  
Piedmont Regional Office  
4949-A Cox Road  
Glen Allen, VA 23060-6296  
[lachildress@deq.virginia.gov](mailto:lachildress@deq.virginia.gov)

12/19/2007

✓A0003867  
R-G-R4

**Mosca,Denise**

---

**From:** Ted Schultz [tschultz@rivnet.net]  
**Sent:** Wednesday, December 19, 2007 9:38 AM  
**To:** Mosca,Denise; Ehrhart,Lisa  
**Subject:** End of Season

Denise and Lisa,

Just an FYI to let you'll know that the 'End of the Fishing Season' was declared on Monday. Also that the plant will be officially closed from Friday Dec 21st at 5:00 PM until Monday Jan 7th at 7:00 AM.

If there is matter of immediate urgency, I can be reached through my 'home' email address.

Denise - we have yet to determine what, if any, boat maintenance will be performed during the off season (i.e. sandblasting and painting). Once determined, I'll contact you and impliment the items necessary to address Part 1 B 15 of VA0003867.

Y'all have a very Happy and Safe Holiday Season.

Please note: Omega company business should be directed to [tschultz@omegaproteininc.com](mailto:tschultz@omegaproteininc.com)

Theodore (Ted) Schultz

Regulatory Compliance  
Omega Protein  
PO Box 175  
Reedville, VA 22539  
(804) 453-4211 X120

[tschultz@rivnet.net](mailto:tschultz@rivnet.net)

12/19/2007



Robert V. LaBruzzo  
General Manager

Ms. Denise Mosca  
Department of Environmental Quality  
4949-A Cox Road  
Glen Allen, VA 23060-6296

April 10, 2007

Quarterly report on phosphorous

Dear Denise,

As indicated in the "Final Compliance Plans" document submitted in December 2007, we intend to use Aluminum Sulfate (Alum) to bind phosphorous in the Waste Treatment lagoons. Alum was applied to the ponds in two phases, early March and mid March. Testing will be performed in April and May to determine the effectiveness.

Sincerely,

Robert LaBruzzo  
General Manager

V10003867 R-G-R4

RECEIVED  
APR 21 2008  
PRO



VA0003867 R-6-R4

RECEIVED  
JUL 01 2008  
PRO

June 27, 2008

Ms. Denise Mosca, Environmental Engineer Senior  
Virginia Dept of Environmental Quality  
Piedmont Regional Office  
4949-A Cox Road  
Glen Allen, VA 23060

Re: Phosphorus Progress Report

*Denise*  
Dear Ms Mosca:

We are continuing to evaluate phosphorus control measures in our aerated lagoons. The application of alum in the off season did not appear to completely resolve the start up issues with phosphorus removal. We are talking to a factory representative from General Electric today about two physical chemical treatment technologies that show promise. I will keep you apprised of our progress.

Sincerely,

*Bill*

William E. Purcell  
Director of Environmental Affairs  
Omega Protein, Inc.

pc: Tom Wittman, Omega Protein  
Bob LaBruzzo, Omega Protein  
Bill Black, EnPro  
Kyle Winter, Deputy Regional Director PRO  
Ted Schultz, Omega Protein





# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

### PIEDMONT REGIONAL OFFICE

4949-A Cox Road, Glen Allen, Virginia 23060

(804) 527-5020 Fax (804) 527-5106

[www.deq.virginia.gov](http://www.deq.virginia.gov)

L. Preston Bryant, Jr.  
Secretary of Natural Resources

David K. Paylor  
Director

Gerard Seeley, Jr.  
Regional Director

August 12, 2008

Mr. Robert La Bruzzo  
General Manager  
Omega Protein, Inc.  
Po Box 175  
Reedville, VA 22539

Re: Inspection, Omega Protein, Inc., Reedville, VA  
Permit Nos. VA0003867, VAR051211, VAR051221

Dear Mr. La Bruzzo,

Enclosed are the Facility and Laboratory Inspection Reports for the Inspection conducted at Omega Protein, Inc., Reedville, VA on August 5, 2008 (VA0003867). No General or Compliance Recommendations resulted from the Facility Inspection and no Deficiencies resulted from the Laboratory Inspection. Please note the Comments section on page 3 of the Laboratory Inspection Report. A response is not required for these reports.

Also enclosed are the General Stormwater Permit Inspection Reports conducted at Omega Protein, Inc., Reedville, VA on August 5, 2008 (VAR051211 & VAR051221). There are Compliance Recommendations associated with both of these Reports. Please provide a written response addressing the Recommendations, citing corrective actions, within 30 days of receipt of this letter.

If you have any questions regarding the reports, please contact me at (804) 527-5055.

Sincerely,

Mike Dare  
Water Inspector

Cc: ~~DEQ~~ - Technical File  
DEQ - OWCP  
EPA - Region III  
T. Schultz

**VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY**

**Wastewater Facility Inspection Report**

<b>Facility Name:</b> <u>Omega Protein, Inc.</u> <b>City/County:</b> <u>Northumberland</u> <b>Inspection Date:</b> <u>August 5, 2008</u> <b>Inspector:</b> <u>Mike Dare</u> <i>MD 8-12-08</i> <b>Reviewed By:</b> <i>Chas. R. Sutz 8/12/08</i>	<b>Facility No.:</b> <u>VA0003867</u> <b>Inspection Agency:</b> <u>DEQ</u> <b>Date Form Completed:</b> <u>August 12, 2008</u> <b>Time Spent:</b> <u>12 hrs. w/ travel &amp; report</u> <b>Unannounced Insp.?</b> <u>No</u> <b>FY-Scheduled Insp.?</b> <u>Yes</u>
<b>Present at Inspection:</b> <u>Ted Schultz, Bill Purcell</u>	
<b>TYPE OF FACILITY:</b> <div style="display: flex; justify-content: space-between;"> <div> <u>Domestic</u>  <input type="checkbox"/> Federal      <input type="checkbox"/> Major  <input type="checkbox"/> Non-Federal      <input type="checkbox"/> Minor         </div> <div> <u>Industrial</u>  <input checked="" type="checkbox"/> Major      <input type="checkbox"/> Primary  <input type="checkbox"/> Minor      <input type="checkbox"/> Secondary         </div> </div> <b>Population Served:</b> <u>approx.: (N/A)</u> <b>Number of Connections:</b> <u>approx.: (N/A)</u>	
<b>TYPE OF INSPECTION:</b> <input checked="" type="checkbox"/> Routine      Date of last inspection: <u>September 13, 2007</u> <input type="checkbox"/> Compliance      Agency: <u>DEQ/PRO</u> <input type="checkbox"/> Reinspection	
<b>EFFLUENT MONITORING: See Discharge Monitoring Reports (DMR) in file</b>  <div style="display: flex; justify-content: space-between;"> <div> <b>Last month average:</b>  <b>(Influent) Date:</b>            Other:         </div> <div> <b>BOD:</b> ____ mg/L  <b>TSS:</b> ____ mg/L  <b>Flow:</b> ____ MGD         </div> </div> <div style="display: flex; justify-content: space-between;"> <div> <b>Last month:</b>  <b>(Effluent) Date:</b>            Other:         </div> <div> <b>BOD:</b> ____ mg/L  <b>TSS:</b> ____ mg/L  <b>Flow:</b> ____ MGD         </div> </div> <div style="display: flex; justify-content: space-between;"> <div> <b>Quarter average:</b>  <b>(Effluent) Date:</b>            Other:         </div> <div> <b>BOD:</b> ____ mg/L  <b>TSS:</b> ____ mg/L  <b>Flow:</b> ____ MGD         </div> </div>	
<b>CHANGES AND/OR CONSTRUCTION</b> <div style="display: flex; justify-content: space-between;"> <div> <b>DATA VERIFIED IN PREFACE</b>  <b>Has there been any new construction?</b>  <b>If yes, were plans and specifications approved?</b>  <b>DEQ approval date:</b> </div> <div> <input type="checkbox"/> Updated  <input type="checkbox"/> Yes*  <input type="checkbox"/> Yes         </div> <div> <input checked="" type="checkbox"/> No changes  <input checked="" type="checkbox"/> No  <input type="checkbox"/> No*    <input checked="" type="checkbox"/> N/A         </div> </div>	

**(A) PLANT OPERATION AND MAINTENANCE**

1. Class and number of licensed operators: Class I – 0, Class II – 0, Class III – 1, Class IV – 0, Trainee - 0
  2. Hours per day plant is staffed: WWTF: 4 hrs; Facility Security: 24 hrs/day
  3. Describe adequacy of staffing: ☐ Good ☒ Average ☐ Poor\*
  4. Does the plant have an established program for training personnel? ☒ Yes ☐ No
  5. Describe the adequacy of the training program: ☐ Good ☒ Average ☐ Poor\*
  6. Are preventive maintenance tasks scheduled? ☒ Yes ☐ No\*
  7. Describe the adequacy of maintenance: ☐ Good ☒ Average ☐ Poor\*
  8. Does the plant experience any organic/hydraulic overloading? ☒ Yes\* ☐ No
- If yes, identify cause and impact on plant: N/A
9. Any bypassing since last inspection? ☒ Yes\* ☐ No
  10. Is the on-site electric generator operational? ☒ Yes ☐ No\* ☐ N/A
  11. Is the STP alarm system operational? ☐ Yes ☐ No \* ☒ N/A
  12. How often is the standby generator exercised? ☒ Weekly ☐ Monthly ☐ Other: N/A
  - Power Transfer Switch? ☒ Weekly ☐ Monthly ☐ Other: N/A
  - Alarm System? ☐ Weekly ☐ Monthly ☒ Other: N/A
  13. When were the cross connection control devices last tested on the potable water service? N/A
  14. Is sludge disposed in accordance with the approved sludge disposal plan? ☐ Yes ☐ No\* ☒ N/A
  15. Is septage received by the facility? ☐ Yes ☒ No
  - Is septage loading controlled? ☐ Yes ☐ No \* ☒ N/A
  - Are records maintained? ☐ Yes ☐ No\* ☒ N/A
  16. Overall appearance of facility: ☐ Good ☒ Average ☐ Poor\*

**Comments:** #4 Training consists of on-the-job training. #8 Typically, the plant is not overloaded but an out of service boiler in July of 2008 caused an unusual amount of decomposed fish material to reach the lagoons. This caused a die-off of the micro-organisms in the lagoons. Lagoon No. 1 was still recovering at the time of inspection and as a result, condensate water from the evaporators - normally discharged to the lagoons - was being hauled and discharged in the Atlantic Ocean. (This activity reportedly regulated under EPA's Ocean Dumping Act.) #9 Fish oil spill 12/2/07; Condensate spill 6/6/08. (See file for details.) #14 – Ms. Denise Mosca, Permit Writer, reports that Omega is working on addressing deficiencies in their sludge disposal plan application.

**(B) PLANT RECORDS**

1. Which of the following records does the plant maintain?
 

Operational Logs for each unit process	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	<input type="checkbox"/> N/A
Instrument maintenance and calibration	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	<input type="checkbox"/> N/A
Mechanical equipment maintenance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	<input type="checkbox"/> N/A
Industrial waste contribution <b>(Municipal Facilities)</b>	<input type="checkbox"/> Yes	<input type="checkbox"/> No*	<input checked="" type="checkbox"/> N/A
  
2. What does the operational log contain?
 

Visual Observations	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
Flow Measurement	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Laboratory Results	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Process Adjustments	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	<input type="checkbox"/> N/A
Control Calculations	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Other:	<u>N/A</u>		
  
3. What do the mechanical equipment records contain:
 

As built plans and specs?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	<input type="checkbox"/> N/A
Spare parts inventory?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	<input type="checkbox"/> N/A
Manufacturers instructions?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	<input type="checkbox"/> N/A
Equipment/parts suppliers?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	<input type="checkbox"/> N/A
Lubrication schedules?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	<input type="checkbox"/> N/A
Other:	<u>N/A</u>		
Comments:	<u>None</u>		
  
4. What do the industrial waste contribution records contain:
 

*(Applicable to municipal facilities only)*

Waste characteristics?	<input type="checkbox"/> Yes	<input type="checkbox"/> No*	<input checked="" type="checkbox"/> N/A
Locations and discharge types?	<input type="checkbox"/> Yes	<input type="checkbox"/> No*	<input checked="" type="checkbox"/> N/A
Impact on plant?	<input type="checkbox"/> Yes	<input type="checkbox"/> No*	<input checked="" type="checkbox"/> N/A
Other:	<u>N/A</u>		
Comments:	<u>None</u>		
  
5. Are the following records maintained at the plant:
 

Equipment maintenance records	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	<input type="checkbox"/> N/A
Operational Log	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	<input type="checkbox"/> N/A
Industrial contributor records	<input type="checkbox"/> Yes	<input type="checkbox"/> No*	<input checked="" type="checkbox"/> N/A
Instrumentation records	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	<input type="checkbox"/> N/A
Sampling and testing records	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*	<input type="checkbox"/> N/A
  
6. Are records maintained at a different location?
 

Where are the records maintained?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
-----------------------------------	------------------------------	--

All are available on site.
  
7. Were the records reviewed during the inspection
 

	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
--	------------------------------	--
  
8. Are the records adequate and the O & M Manual current?
 

	<input type="checkbox"/> Yes	<input type="checkbox"/> No*	<input type="checkbox"/> N/A
--	------------------------------	------------------------------	------------------------------

**O&M Manual date written: July 27, 1998 with subsequent updates**  
**Date DEQ approved O&M: April 6, 2006**
  
9. Are the records maintained for required 3-year period?
 

	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No*
--	---	------------------------------

**Comments: None**

**(C) SAMPLING**

- |  |   |                              |                              |
|--|---|------------------------------|------------------------------|
| 1. Are sampling locations capable of providing representative samples? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |
| 2. Do sample types correspond to those required by the permit?         | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |
| 3. Do sampling frequencies correspond to those required by the permit? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |
| 4. Are composite samples collected in proportion to flow?              | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |
| 5. Are composite samples refrigerated during collection?               | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |
| 6. Does plant maintain required records of sampling?                   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |
| 7. Does plant run operational control tests?                           | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No* | <input type="checkbox"/> N/A |

**Comments:**

**(D) TESTING**

1. Who performs the testing? ☒ Plant/ Lab  
☐ Central Lab  
☒ Commercial Lab - Name: Air, Water and Soil Laboratories, Inc.

***If plant performs any testing, complete 2-4.***

2. What method is used for chlorine analysis? N/A
3. Is sufficient equipment available to perform required tests? ☒ Yes ☐ No\* ☐ N/A
4. Does testing equipment appear to be clean and/or operable? ☒ Yes ☐ No\* ☐ N/A

**Comments: Please see enclosed DEQ Laboratory Inspection Report.**

**(E) FOR INDUSTRIAL FACILITIES W/ TECHNOLOGY BASED LIMITS**

1. Is the production process as described in the permit application? (If no, describe changes in comments)  
☒ Yes ☐ No\* ☐ N/A
2. Do products and production rates correspond to the permit application? (If no, list differences in comments section)  
☒ Yes ☐ No\* ☐ N/A
3. Has the State been notified of the changes and their impact on plant effluent?  
☐ Yes ☐ No\* ☒ N/A

**Comments: None**

**FOLLOW UP TO COMPLIANCE RECOMMENDATIONS FROM THE September 13, 2007 DEQ INSPECTION:**

1. There were no compliance recommendations from the September 13, 2007 DEQ inspection.

**FOLLOW UP TO GENERAL RECOMMENDATIONS FROM THE September 13, 2007 DEQ INSPECTION:**

1. There were no general recommendations from the September 13, 2007 DEQ inspection.

**INSPECTION REPORT SUMMARY**

**Compliance Recommendations/Request for Corrective Action:**

None

**General Recommendations/Observations:**

None

**Comments:**

Omega Protein, Inc. is a producer of fish oil and fish meal. The oils are stored in above ground storage tanks which are protected by spill containment dikes. Containment areas also protect fuel oil and diesel above ground storage tanks. Best Management Practices (BMP) compliance reports are submitted along with the Discharge Monitoring Report (DMR). Swift Creek Environmental performs ground water monitoring. Vessel repair work is performed by contractor at an off site location. Flame dryers are scheduled to be replaced with steam dryers during the next off season. This action will eliminate cyanide and significantly reduce total nitrogen in the discharge from the facility. Mr. Schultz reported that Omega personnel are working to meet the compliance schedules for total phosphorus, fecal coliform and enterococci as outlined in the permit.

Areas of emphasis (Compliance Assessment) – check all that apply:

<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Operational Units
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Evaluation of O & M Manual
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Maintenance Records
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A

Pathogen Reduction & Vector Attraction Reduction  
Sludge Disposal Plan  
Groundwater Monitoring Plan  
Storm Water Pollution Prevention Plan (See SWPPP Reports)  
Permit Special Conditions  
Permit Water Quality Chemical Monitoring  
Laboratory Records (see Lab Report)

**UNIT PROCESS: Ponds/Lagoons**

1. Type: ☒ Aerated ☐ Unaerated ☐ Polishing
2. No. of cells: 2  
Number in Operation: 2
3. Color: ☐ Green ☐ D. Brown ☐ L. Brown ☐ Grey  
☒ Other **No. 1 – Lt. brown foam; No. 2 - clear**
4. Odor: ☐ Septic \* ☐ Earthy ☒ None  
☐ Other:
5. System operated in: ☒ Series ☐ Parallel ☐ N/A
6. If aerated, are lagoon contents mixed adequately? ☒ Yes ☐ No \* ☐ N/A
7. If aerated, is aeration system operating properly? ☒ Yes ☐ No \* ☐ N/A
8. Evidence of following problems:  
a. Vegetation in lagoon or dikes? ☐ Yes \* ☒ No  
b. Rodents burrowing on dikes? ☐ Yes \* ☒ No  
c. Erosion? ☐ Yes \* ☒ No  
d. Sludge bars? ☐ Yes \* ☒ No  
e. Excessive foam? ☒ Yes \* ☐ No  
f. Floating material? ☐ Yes \* ☒ No
9. Fencing intact? ☐ Yes ☒ No \*
10. Grass maintained properly: ☒ Yes ☐ No
11. Level control valves working properly? ☒ Yes ☐ No \* ☐ N/A
12. Effluent discharge elevation: ☒ Top ☐ Middle ☐ Bottom
13. Available freeboard: approx. 3 ft.
14. Appearance of effluent: ☐ Good ☐ Fair ☐ Poor \* **N/A**
15. Are monitoring wells present? ☒ Yes ☐ No **Not viewed**  
Are wells adequately protected from runoff? ☐ Yes ☐ No \* ☐ N/A  
Are caps on and secured? ☐ Yes ☐ No \* ☐ N/A
16. General condition: ☐ Good ☐ Fair ☒ Poor\*

**Comments:** The two aerated lagoons operate in series and receive condensate water from the evaporators. The plant evaporators are occasionally cleaned with H<sub>2</sub>SO<sub>4</sub> or HNO<sub>3</sub>. This cleaning solution is placed in a tank and metered into the lagoon system. Each lagoon has a curtain to improve biological treatment and extend retention time. Nitrifying bacteria (Nitrobacter and Nitrosomonas) are added near the influent to the second lagoon. A backup generator allows aeration to continue during power outages. #8, #14, #16 - An out of service boiler in July of 2008 caused an unusual amount of decomposed fish material to reach the lagoons. This caused a die-off of the micro-organisms in the lagoons. Lagoon No. 1 was still recovering at the time of inspection and as a result, condensate water from the evaporators, normally discharged to the lagoons, was being hauled and discharged in the Atlantic Ocean. (This activity reportedly regulated under EPA's Ocean Dumping Act.) #9 - Perimeter fencing is missing in some areas. #12 - The surface discharge point at the second lagoon is located at a fixed level.

**UNIT PROCESS: Sludge Holding Lagoon**

- |   |  |   |  |
|---|--|---|--|
| 1. Type:  | <input type="checkbox"/> Aerated                                     | <input checked="" type="checkbox"/> Unaerated | <input type="checkbox"/> Polishing   |
| 2. No. of cells:                                      | <u>1</u>   |   |  |
| Number in Operation:                                  | <u>1</u>   |   |  |
| 3. Color:   | <input type="checkbox"/> Green<br><input type="checkbox"/> Other     | <input type="checkbox"/> D. Brown             | <input checked="" type="checkbox"/> L. Brown <input type="checkbox"/> Grey |
| 4. Odor:  | <input type="checkbox"/> Septic *<br><input type="checkbox"/> Other: | <input type="checkbox"/> Earthy               | <input checked="" type="checkbox"/> None                                   |
| 5. System operated in:                                | <input type="checkbox"/> Series                                      | <input type="checkbox"/> Parallel             | <input checked="" type="checkbox"/> N/A                                    |
| 6. If aerated, are lagoon contents mixed adequately?  | <input type="checkbox"/> Yes   | <input type="checkbox"/> No *                 | <input checked="" type="checkbox"/> N/A                                    |
| 7. If aerated, is aeration system operating properly? | <input type="checkbox"/> Yes   | <input type="checkbox"/> No *                 | <input checked="" type="checkbox"/> N/A                                    |
| 8. Evidence of following problems:                    |  |   |  |
| a. Vegetation in lagoon or dikes?                     | <input type="checkbox"/> Yes *                                       | <input checked="" type="checkbox"/> No        |  |
| b. Rodents burrowing on dikes?                        | <input type="checkbox"/> Yes *                                       | <input checked="" type="checkbox"/> No        |  |
| c. Erosion?   | <input type="checkbox"/> Yes *                                       | <input checked="" type="checkbox"/> No        |  |
| d. Sludge bars?                                       | <input type="checkbox"/> Yes *                                       | <input checked="" type="checkbox"/> No        |  |
| e. Excessive foam?                                    | <input type="checkbox"/> Yes *                                       | <input checked="" type="checkbox"/> No        |  |
| f. Floating material?                                 | <input type="checkbox"/> Yes *                                       | <input checked="" type="checkbox"/> No        |  |
| 9. Fencing intact?                                    | <input type="checkbox"/> Yes   | <input checked="" type="checkbox"/> No *      | <b>Not fenced</b>  |
| 10. Grass maintained properly:                        | <input checked="" type="checkbox"/> Yes                              | <input type="checkbox"/> No                   |  |
| 11. Level control valves working properly?            | <input type="checkbox"/> Yes   | <input type="checkbox"/> No *                 | <input checked="" type="checkbox"/> N/A                                    |
| 12. Effluent discharge elevation:                     | <input type="checkbox"/> Top   | <input type="checkbox"/> Middle               | <input type="checkbox"/> Bottom <input checked="" type="checkbox"/> N/A    |
| 13. Available freeboard:                              | <u>approx. 3 ft.</u>   |   |  |
| 14. Appearance of effluent:                           | <input type="checkbox"/> Good  | <input type="checkbox"/> Fair                 | <input type="checkbox"/> Poor * <input checked="" type="checkbox"/> N/A    |
| 15. Are monitoring wells present?                     | <input type="checkbox"/> Yes   | <input checked="" type="checkbox"/> No        |  |
| Are wells adequately protected from runoff?           | <input type="checkbox"/> Yes   | <input type="checkbox"/> No *                 | <input checked="" type="checkbox"/> N/A                                    |
| Are caps on and secured?                              | <input type="checkbox"/> Yes   | <input type="checkbox"/> No *                 | <input checked="" type="checkbox"/> N/A                                    |
| 16. General condition:                                | <input checked="" type="checkbox"/> Good                             | <input type="checkbox"/> Fair                 | <input type="checkbox"/> Poor*   |

**Comments:** The sludge in the lagoon was dry at the time of inspection. Ms. Denise Mosca, Permit Writer, reports that Omega is working on addressing deficiencies in their sludge disposal plan application. Sludge has not been added to this lagoon since approximately January 2006.



**UNIT PROCESS: Flow Measurement****Outfall 002****☐ Influent****☐ Intermediate****☒ Effluent**

1. Type measuring device: 90° v-notch weir w/ultrasonic sensor
2. Present reading: No discharge at time of inspection
3. Bypass channel?  
Metered? ☐ Yes ☒ No  
☐ Yes ☐ No\* ☒ N/A
4. Return flows discharged upstream from meter?  
If Yes, identify: ☐ Yes ☒ No
5. Device operating properly? ☒ Yes ☐ No\*
6. Date of last calibration: Not ascertained
7. Evidence of following problems:  
a. Obstructions? ☐ Yes\* ☒ No  
b. Grease? ☐ Yes\* ☒ No
8. General condition: ☒ Good ☐ Fair ☐ Poor\*

**Comments: Outfall 002 is the discharge from the aerated lagoons. The automatic sampler at this location is tied into the flow meter for flow proportional sampling.**

**UNIT PROCESS: Flow Measurement****Outfall 995**

☐ Influent      ☐ Intermediate      ☒ Effluent

1. Type measuring device: None
2. Present reading: Based on pump run times
3. Bypass channel? ☐ Yes      ☒ No  
     Metered? ☐ Yes      ☐ No\*      ☒ N/A
4. Return flows discharged upstream from meter? ☐ Yes      ☒ No  
     If Yes, identify: N/A
5. Device operating properly? ☐ Yes      ☐ No\*      ☒ N/A
6. Date of last calibration: N/A
7. Evidence of following problems:
  - a. Obstructions? ☐ Yes\*      ☒ No
  - b. Grease? ☐ Yes\*      ☒ No
8. General condition: ☒ Good      ☐ Fair      ☐ Poor\*

**Comments: Non-contact cooling water discharges through this outfall.**

**UNIT PROCESS: Flow Measurement****Outfall 001**☐ Influent☐ Intermediate☒ Effluent

1. Type measuring device: None
2. Present reading: Based on pump run times
3. Bypass channel? ☐ Yes ☒ No  
 Metered? ☐ Yes ☐ No\* ☒ N/A
4. Return flows discharged upstream from meter? ☐ Yes ☒ No  
 If Yes, identify: N/A
5. Device operating properly? ☐ Yes ☐ No\* ☒ N/A
6. Date of last calibration: N/A
7. Evidence of following problems:  
 a. Obstructions? ☐ Yes\* ☒ No  
 b. Grease? ☐ Yes\* ☒ No
8. General condition: ☒ Good ☐ Fair ☐ Poor\*

**Comments:** Water from the flame dryer exhaust scrubbers (approx. 25 gpm) is blended with non-contact cooling water (approx. 3000 gpm) and discharged through this outfall.

**UNIT PROCESS: Effluent/Plant Outfall**

1. Type outfall: ☒ Shore based (995) ☒ Submerged (001 & 002)
2. Type if shore based: ☐ Wingwall ☒ Headwall ☐ Rip Rap ☐ N/A
3. Flapper valve? ☐ Yes ☒ No
4. Erosion of bank? ☐ Yes\* ☒ No ☐ N/A
5. Effluent plume visible? ☐ Yes \* ☒ No

**Comments: None**

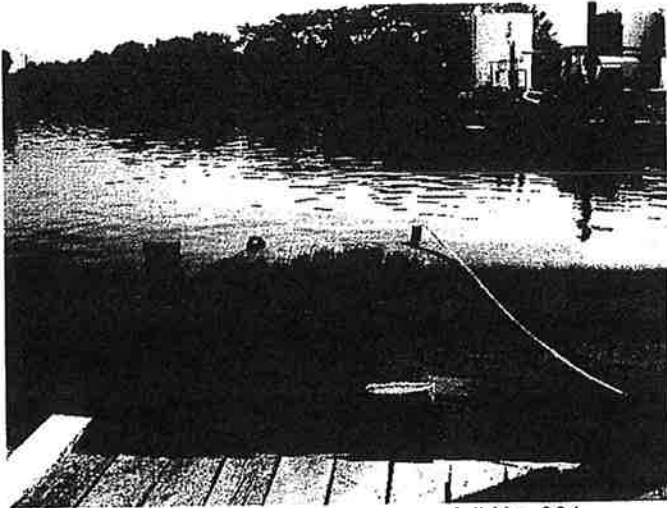
6. Condition of outfall and supporting structures: ☒ Good ☐ Fair ☐ Poor \*
7. Final effluent, evidence of following problems:
- a. Oil sheen? ☐ Yes\* ☒ No
  - b. Grease? ☐ Yes\* ☒ No
  - c. Sludge bar? ☐ Yes\* ☒ No
  - d. Turbid effluent? ☐ Yes\* ☒ No
  - e. Visible foam? ☐ Yes\* ☒ No
  - f. Unusual odor? ☐ Yes\* ☒ No

**Comments: None**

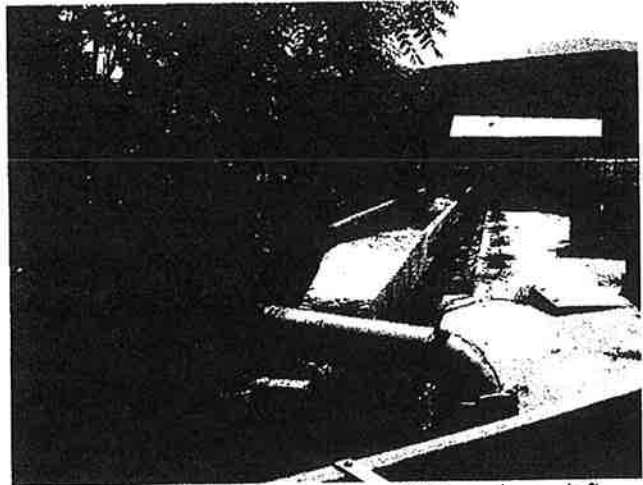
cc:

- ☒ Owner: c/o Mr. Robert La Bruzzo - General Manager
- ☒ Operator: Ted Schultz
- ☐ Local Health Department:
- ☐ VDH Engineering Field Office: Field Office
- ☐ VDH/Central Office - DWE
- ☒ DEQ - OWCP
- ☒ DEQ - Regional Office File
- ☒ EPA - Region III

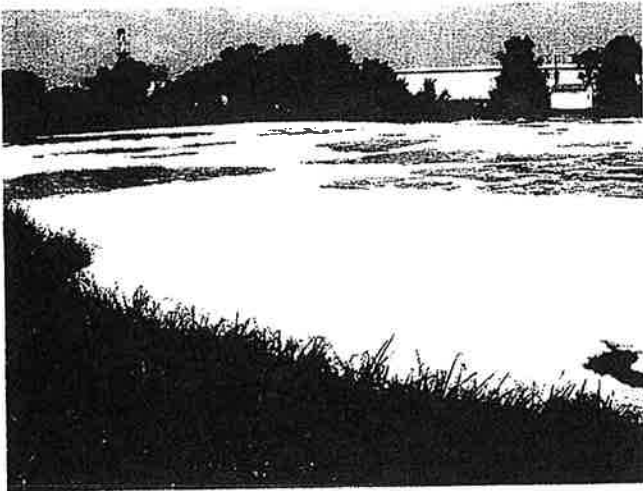
## INSPECTION PHOTOS



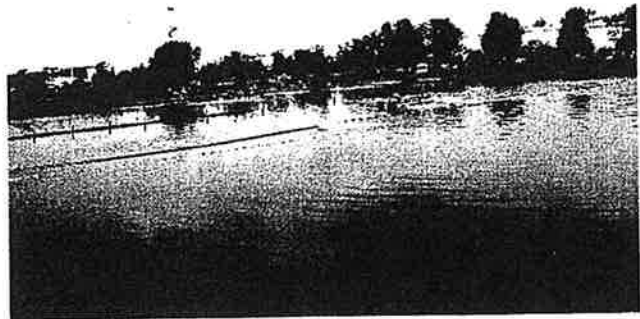
Pipe leading to submerged outfall No. 001



Discharge point for outfall No. 995 is at lower left



Lagoon No. 1



Lagoon No. 2



Part of sludge holding lagoon can be seen at center-left.  
Old "Ampro" site can be seen in background.



Shoreline below sludge lagoon has been reinforced.

# LABORATORY INSPECTION REPORT

Form Updated 10/4/2001

[illegible]

**LABORATORY RECORDS SECTION**

LABORATORY RECORDS INCLUDE THE FOLLOWING:

<input checked="" type="checkbox"/>	SAMPLING DATE	<input checked="" type="checkbox"/>	ANALYSIS DATE	<input type="checkbox"/>	CONT MONITORING CHART
<input checked="" type="checkbox"/>	SAMPLING TIME	<input checked="" type="checkbox"/>	ANALYSIS TIME	<input checked="" type="checkbox"/>	INSTRUMENT CALIBRATION
<input checked="" type="checkbox"/>	SAMPLE LOCATION	<input checked="" type="checkbox"/>	TEST METHOD	<input checked="" type="checkbox"/>	INSTRUMENT MAINTENANCE
				<input checked="" type="checkbox"/>	CERTIFICATE OF ANALYSIS

WRITTEN INSTRUCTIONS INCLUDE THE FOLLOWING:

<input checked="" type="checkbox"/>	SAMPLING SCHEDULES	<input checked="" type="checkbox"/>	CALCULATIONS	<input checked="" type="checkbox"/>	ANALYSIS PROCEDURES
-------------------------------------	--------------------	-------------------------------------	--------------	-------------------------------------	---------------------

	YES	NO	N/A
DO ALL ANALYSTS INITIAL THEIR WORK?	X		
DO BENCH SHEETS INCLUDE ALL INFORMATION NECESSARY TO DETERMINE RESULTS?	X		
IS THE DMR COMPLETE AND CORRECT? MONTH(S) REVIEWED: <b>June 2008</b>	X		
ARE ALL MONITORING VALUES REQUIRED BY THE PERMIT REPORTED?	X		

**GENERAL SAMPLING AND ANALYSIS SECTION**

	YES	NO	N/A
ARE SAMPLE LOCATION(S) ACCORDING TO PERMIT REQUIREMENTS?	X		
ARE SAMPLE COLLECTION PROCEDURES APPROPRIATE?	X		
IS SAMPLE EQUIPMENT CONDITION ADEQUATE?	X		
IS FLOW MEASUREMENT ACCORDING TO PERMIT REQUIREMENTS?	X		
ARE COMPOSITE SAMPLES REPRESENTATIVE OF FLOW?	X		
ARE SAMPLE HOLDING TIMES AND PRESERVATION ADEQUATE?	X		
IF ANALYSIS IS PERFORMED AT ANOTHER LOCATION, ARE SHIPPING PROCEDURES ADEQUATE? LIST PARAMETERS AND NAME & ADDRESS OF LAB: <b>Air, Water and Soil, Labortories, Inc., Richmond, VA BOD, TSS, TKN, NH3-N, NO2, NO3, Total N, Ortho &amp; Total P, Oil &amp; Grease, Cyanide, Fecal Coliform, Enterococci, Toxicity, Copper, Silver, Zinc.</b>	X		

**LABORATORY EQUIPMENT SECTION**

	YES	NO	N/A
IS LABORATORY EQUIPMENT IN PROPER OPERATING RANGE?	X		
ARE ANNUAL THERMOMETER CALIBRATION(S) ADEQUATE?	X		
IS THE LABORATORY GRADE WATER SUPPLY ADEQUATE?			X
ARE ANALYTICAL BALANCE(S) ADEQUATE?			X

# LABORATORY INSPECTION REPORT SUMMARY

<b>FACILITY NAME:</b> Omega Protein, Inc.	<b>FACILITY NO:</b> VA0003867	<b>INSPECTION DATE:</b> August 5, 2008
<b>OVERALL LABORATORY EVALUATION:</b>	<input type="checkbox"/> Deficiencies <input checked="" type="checkbox"/> No Deficiencies	
<b>LABORATORY RECORDS</b>		
None		
<b>GENERAL SAMPLING AND ANALYSIS</b>		
None		
<b>LABORATORY EQUIPMENT</b>		
None		
<b>INDIVIDUAL PARAMETERS</b>		
None		
<p align="center"><b><u>COMMENTS</u></b></p> <ol style="list-style-type: none"> <li>1. The concentration and loading values for Total Phosphorus are reversed on the June 2008 DMR for Outfall 002. Mr. Schultz reported that a revised DMR will be submitted.</li> <li>2. Mr. Schultz indicated that he will ensure the initial demonstration of capability is performed for pH. This is new guidance resulting from recent changes to 40 CFR Part 136.</li> <li>3. Orthophosphate sample should be filtered within 15 minutes of collection. This is based on guidance in 40 CFR Part 136.</li> <li>4. Reminder - Annual thermometer verification is due during August of 2008 for sample refrigerator and auto samplers.</li> </ol>		



ANALYST:	Ted Schultz	VPDES NO	VA0003867
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Meter: Symphony VWR

Parameter: Hydrogen Ion (pH)

1/08

Method: Electrometric

**METHOD OF ANALYSIS:**

X	18 <sup>th</sup> Edition of Standard Methods – 4500-H <sup>+</sup> B
	21 <sup>st</sup> or Online Editions of Standard Methods – 4500-H <sup>+</sup> B (00)

pH is a method-defined analyte so modifications are not allowed. [40 CFR Part 136.6]		Y	N
1)	Is a certificate of operator competence or initial demonstration of capability available for <u>each analyst/operator</u> performing this analysis? <b>NOTE:</b> Analyze 4 samples of known pH. May use external source of buffer (different lot/manufacturer than buffers used to calibrate meter). Recovery for each of the 4 samples must be +/- 0.1 SU of the known concentration of the sample. [SM 1020 B.1]	New guidance	
2)	Is the electrode in good condition (no chloride precipitate, scratches, deterioration, etc.)? [2.b/c and 5.b]	X	
3)	Is electrode storage solution in accordance with manufacturer's instructions? [Mfr.]	X	
4)	Is meter calibrated on at least a daily basis using three buffers all of which are at the same temperature? [4.a] <b>NOTE:</b> Follow manufacturer's instructions.	X	
5)	After calibration, is a buffer analyzed as a check sample to verify that calibration is correct? Agreement should be within +/- 0.1 SU. [4.a]	X	
6)	Do the buffer solutions appear to be free of contamination or growths? [3.1]	X	
7)	Are buffer solutions within the listed shelf-life or have they been prepared within the last 4 weeks? [3.a]	X	
8)	Is the cap or sleeve covering the access hole on the reference electrode removed when measuring pH? [Mfr.]	N/A	
9)	For meters with ATC that also have temperature display, is the thermometer verified annually? [SM 2550 B.1]	X	
10)	Is temperature of buffer solutions and samples recorded when determining pH? [4.a]	X	
11)	Is sample analyzed within 15 minutes of collections? [40 CFR Part 136]	X	
12)	Is the electrode rinsed and then blotted dry between reading solutions (Disregard if a portion of the next sample analyzed is used as the rinsing solution.)? [4.a]	X	
13)	Is the sample stirred gently at a constant speed during measurement? [4.b]	X	
14)	Does the meter hold a steady reading after reaching equilibrium? [4.b]	X	
15)	Is a duplicate sample analyzed after every 20 samples if citing 18 <sup>th</sup> or 19 <sup>th</sup> Edition or daily for 20 <sup>th</sup> or 21 <sup>st</sup> Edition? [Part 1020] <b>NOTE:</b> Not required for <i>in situ</i> samples.	*	
16)	Is the pH of duplicate samples within 0.1SU of the original sample? [Part 1020]	*	
17)	Is there a written procedure for which result will be reported on DMR (Sample or Duplicate) and is this procedure followed? [DEQ]	*	

PROBLEMS: 1) Mr. Schultz indicated that he will ensure the initial demonstration of capability is performed.  
 \*15, 16, 17) Duplicate sample analysis no longer required by VA DEQ.

**DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION**  
**SAMPLE ANALYSIS HOLDING TIME/CONTAINER/PRESERVATION CHECK SHEET**

Revised 3/08 [40 CFR, Part 136.3, Table II]

FACILITY NAME:		Omega Protein, Inc.				VPDES NO		VA0003867		DATE:		August 5, 2008		
HOLDING TIMES						SAMPLE CONTAINER				PRESERVATION				
PARAMETER	APPROVED	MET?		LOGGED?		ADEQ. VOLUME		APPROP. TYPE		APPROVED	MET?		CHECKED?	
		Y	N	Y	N	Y	N	Y	N		Y	N	Y	N
BOD5 & CBOD5	48 HOURS	X		X		X		X		ANALYZE 2 HRS or 6°C	X		X	
TSS	7 DAYS	X		X		X		X		6°C	X		X	
FECAL COLIFORM / <i>E. coli</i> / <i>Enterococci</i>	6 HRS & 2 HRS TO PROCESS	X		X		X		X		10°C (1 HOUR)+ 0.008% Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	X		X	
pH	15 MIN.	X		X		X		X		N/A				
CHLORINE	15 MIN.									N/A				
DISSOLVED O <sub>2</sub>	15 MIN./IN SITU									N/A				
TEMPERATURE	IMMERSION STAB.									N/A				
OIL & GREASE	28 DAYS	X		X		X		X		6°C + H <sub>2</sub> SO <sub>4</sub> /HCL pH<2	X		X	
AMMONIA	28 DAYS	X		X		X		X		6°C + H <sub>2</sub> SO <sub>4</sub> pH<2 DECHLOR	X		X	
TKN	28 DAYS	X		X		X		X		6°C + H <sub>2</sub> SO <sub>4</sub> pH<2 DECHLOR	X		X	
NITRATE	48 HOURS									6°C				
NITRATE+NITRITE	28 DAYS	X		X		X		X		6°C + H <sub>2</sub> SO <sub>4</sub> pH<2	X		X	
NITRITE	48 HOURS	X		X		X		X		6°C	X		X	
PHOSPHATE, ORTHO	48 HOURS	X		X		X		X		FILTER, 6°C	X		X	
TOTAL PHOS.	28 DAYS	X		X		X		X		6°C+ H <sub>2</sub> SO <sub>4</sub> pH<2	X		X	
METALS (except Hg)	6 MONTHS	X		X		X		X		HNO <sub>3</sub> pH<2	X		X	
MERCURY (CVAA)	28 DAYS									HNO <sub>3</sub> pH<2				
PROBLEMS: None										PROBLEMS: Orthophosphate sample should be filtered within 15 min of collection				

**DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION  
EQUIPMENT TEMPERATURE LOG/THERMOMETER VERIFICATION CHECK SHEET**

1/08

FACILITY NAME:	Omega Protein, Inc.			VPDES NO:	VA0003867			DATE:	August 5, 2008				
EQUIPMENT	RANGE	IN RANGE		INSPECT READING °C	CHECK & LOG DAILY		CORRECT INCREMENT		ANNUAL THERMOMETER VERIFICATION				
									Is the NIST / NIST-Traceable Reference Thermometer within the manufacturer's expiration date or recertified yearly? <i>Not checked</i>			Y/N	
		Y	N		Y	N	Y	N	DATE CHECKED	MARKED		CORR FACTOR	INSPECT TEMP
									Y	N	°C	°C	
SAMPLE REFRIGER.	1-6°C	X		1.7 °C	X		X		8/9/07	X		+0.1°C	
AUTO SAMPLER	1-6° C	X		001 – 4°C	X		X		8/07	X		-0.4°C	
		X		002 – 4.5°C	X		X		8/07	X		+0.1°C	
BOD INCUBATOR	20 ± 1° C												
SOLIDS DRYING OVEN	103-105° C												
WATER BATH	44.5 ± .2° C												
INCUBATOR	35± .5° C												
AUTOClave	121° C IN 30 MIN												
HOT AIR STERILIZING	170 ± 10° C												
O & G WATER BATH	70± 2° C												
REAGENT REFRIGER.	1-6° C												
pH METER	± 1° C			Not checked					9/10/07	X		+0.2°C	
DO METER	± 1° C												
THERMOMETER-OUTFALL	± 1° C												
Hg WATER BATH	95 °C												

Comments: Annual thermometer verification is due during August of 2008 for sample refrigerator and auto samplers.

Tech Hazards Director:			
Ops Duty Officer:			
DEQ Duty Officer:	PRO		16:19-E

## ACTIONS TAKEN

16:19- E-MAILED REPORT TO HMO PARKER AND DEQ (PRO)

Completed By: jchilds at

NATIONAL RESPONSE CENTER 1-800-424-8802

\*\*\*GOVERNMENT USE ONLY\*\*\*GOVERNMENT USE ONLY\*\*\*

Information released to a third party shall comply with any applicable federal and/or state Freedom of Information and Privacy Laws

Incident Report # 882740

## INCIDENT DESCRIPTION

\*Report taken by: CIV RENOWN CREWS at 15:44 on 04-SEP-08

Incident Type: VESSEL

Incident Cause: OPERATOR ERROR

Affected Area: COCKRELL CREEK

Incident occurred on 04-SEP-08 at 14:10 local incident time.

Affected Medium: WATER COCKRELL CREEK

## REPORTING PARTY

Name: TED SCHULTZ

Organization: OMEGA PROTEIN USA

Address: 610 MENHADEN RD

REEDVILLE, VA 22539

OMEGA PROTEIN USA reported for the responsible party.

PRIMARY Phone: (804)4534211

Type of Organization: PRIVATE ENTERPRISE

## SUSPECTED RESPONSIBLE PARTY

Name: TED SCHULTZ

Organization: OMEGA PROTEIN USA

Address: 610 MENHADEN RD

REEDVILLE, VA 22539

PRIMARY Phone: (804)4534211

## INCIDENT LOCATION

610 MENHADEN RD County: NORTHUMBERLAND

City: REEDVILLE State: VA

## RELEASED MATERIAL(S)

CHRIS Code: ODS Official Material Name: OIL: DIESEL

Also Known As:

Qty Released: 3 GALLON(S)

Qty in Water: 3 GALLON(S)

## DESCRIPTION OF INCIDENT

THE FUEL TANK ON THE FISHING VESSEL TIDELAND WAS OVERFILLED CAUSING

A SPILL INTO THE COCKRELL CREEK.

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SENSITIVE INFORMATION

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INCIDENT DETAILS

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Platform Rig Name:  
 Platform Letter:  
 Location Area ID:  
 Location Block ID:  
 OCSG Number:  
 OCSF Number:  
 State Lease Number:  
 Pier Dock Number:  
 Berth Slip Number:  
 ---WATER INFORMATION---  
 Body of Water: COCKRELL CREEK  
 Tributary of:  
 Nearest River Mile Marker:  
 Water Supply Contaminated: NO  
 ---VESSEL INFORMATION---  
 Name: TIDELAND Number: N/A Aground: NO  
 Flag:  
 Length: 190 Breadth: Draught:  
 Type: FISHING  
 Hull Construction:  
 Fuel Capacity:  
 Fuel on Board:  
 Cargo Capacity:  
 Cargo on Board:

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IMPACT

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Fire Involved: NO Fire Extinguished: UNKNOWN

INJURIES: NO	Hospitalized:	Empl/Crew:	Passenger:
FATALITIES: NO	Empl/Crew:	Passenger:	Occupant:
EVACUATIONS: NO	Who Evacuated:	Radius/Area:	

Damages: NO

Closure Type	Description of Closure	Hours Closed	Direction of Closure
Air:	N		
Road:	N		Major Artery: N
Waterway:	N		
Track:			

Environmental Impact: NO

Media Interest: NONE Community Impact due to Material:

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REMEDIAL ACTIONS

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BOOMS APPLIED, ABSORBENTS APPLIED  
 Release Secured: YES  
 Release Rate:  
 Estimated Release Duration:

---

WEATHER

Weather: CLEAR, °F

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ADDITIONAL AGENCIES NOTIFIED

Federal: NONE  
State/Local: NONE  
State/Local On Scene: NONE  
State Agency Number: NONE

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NOTIFICATIONS BY NRC

ATLANTIC STRIKE TEAM (MAIN OFFICE)  
04-SEP-08 15:53 (609)7240008  
USCG HSOC AT DHS (USCG HSOC DESK)  
04-SEP-08 15:53 (202)2828114  
USCG ICC (ICC ONI)  
04-SEP-08 15:53 (301)6693363  
CG INVESTIGATIVE SERVICE HQ (MAIN OFFICE)  
04-SEP-08 15:53 (202)4936607  
DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)  
04-SEP-08 15:53 (202)3661863  
FLD INTEL SUPPORT TEAM BALTIMORE (CGIS)  
04-SEP-08 15:53 (410)5762673  
HAMPTON FIRE MARSHALL BUREAU (ENVIRONMENTAL CRIME & HAZMAT INSPECTOR)  
04-SEP-08 15:53 (757)7271210  
NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)  
04-SEP-08 15:53 (202)2829201  
NOAA RPTS FOR VA (MAIN OFFICE)  
04-SEP-08 15:53 (206)5264911  
SECTOR HAMPTON ROADS (COMMAND CENTER)  
(757)6386641  
MD DEPT OF ENV (MAIN OFFICE)  
04-SEP-08 15:53 (866)6334686  
VA DEPT EMERGENCY MANAGEMENT (MAIN OFFICE)  
04-SEP-08 15:53 (804)6742400

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ADDITIONAL INFORMATION

NONE

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\*\*\* END INCIDENT REPORT #882740 \*\*\*

Report any problems by calling 1-800-424-8802  
PLEASE VISIT OUR WEB SITE AT <http://www.nrc.uscg.mil>

**Dare, Michael**

**From:** Bell, James  
**Sent:** Wednesday, September 10, 2008 11:43 AM  
**To:** Winter, Kyle; Morris, Stephen; Alling, Mark; Dare, Michael; Mosca, Denise  
**Subject:** FW: phone call this am--re the Omega Protein/VMRC incident of 9/3/08

When Mike contacted VMRC to wrap up the case of improper discharge from the Shearwater vessel, the VMRC person said it was not the Shearwater that was involved—but rather the Tangier Island. So Mike called Bill Purcell to inquire about the events related to the movements etc. of the Tangier Island vessel, and training for the ship, deck and factory personnel so that all persons involved were on the same page about what was allowed and what was not.

J.R. Bell, Jr.  
Water Compliance Manager  
Piedmont Regional Office  
804-527-5025  
804-527-5106 (fax)

[jrbell@deq.virginia.gov](mailto:jrbell@deq.virginia.gov)

-----Original Message-----

**From:** Dare, Michael  
**Sent:** Wednesday, September 10, 2008 11:05 AM  
**To:** [bpurcell@omegaproteininc.com](mailto:bpurcell@omegaproteininc.com)  
**Cc:** Bell, James  
**Subject:** phone call this am

Bill,

Just to reiterate our discussion from this morning, you plan to:

1. Provide the ship's log from the Tangier Island for September 3, 2008 and
2. Check with the Marine Manager to see if deck hand training can include a description of what can (and cannot) be dumped overboard and where.

As you mentioned, chemicals are not an issue as no chemicals are added to the refrigeration water.

So I can relay to VMRC, please confirm whether or not buoy GW1 is within the permitted refrigeration water discharge area. Also, please let me know how far the permitted refrigeration water discharge area is from Omega's docks.

Thank you,

Mike Dare

Water Inspector

Virginia Department of Environmental Quality

Piedmont Regional Office

4949-A Cox Road

Glen Allen, VA 23060

Phone: 804-527-5055

Fax: 804-527-5106





October 21, 2008

Mr. James R. Bell, Water Compliance Manager  
Virginia Dept of Environmental Quality  
Piedmont Regional Office  
4949-A Cox Road  
Glen Allen, VA 23060

Re: VA0003867 – 5 Day Letter

Dear Mr. Bell: *JR*

We discovered the leak in the pipe carrying condensate to our aerated ponds (outfall 002) on Oct 16 and completed repairs on Oct 17. The leak was small and no condensate reached state waters. As I stated in my earlier email we will be replacing the entire line during the upcoming off season so hopefully the problem will permanently corrected.

If you require additional information please contact me directly.

Sincerely,

William Purcell  
Environmental Director  
Omega Protein, Inc.

pc: Bob LaBruzzo, Omega Protein



October 21, 2008

Mr. James R. Bell, Water Compliance Manager  
Virginia Dept of Environmental Quality  
Piedmont Regional Office  
4949-A Cox Road  
Glen Allen, VA 23060

Re: VA0003867 – 5 Day Letter

Dear Mr. Bell:

*JR*

We discovered the leak in the pipe carrying condensate to our aerated ponds (outfall 002) on Oct 16 and completed repairs on Oct 17. The leak was small and no condensate reached state waters. As I stated in my earlier email we will be replacing the entire line during the upcoming off season so hopefully the problem will permanently corrected.

If you require additional information please contact me directly.

Sincerely,

*William Purcell*

William Purcell  
Environmental Director  
Omega Protein, Inc.

pc: Bob LaBruzzo, Omega Protein

Pat

3867



**Unauthorized Discharge & Overflow Report**  
**Piedmont Regional Office**  
 Phone #(804)527-5020 Fax #(804)527-5106

**Incident Response No:** \_\_\_\_\_ **Reported To:** J.R. Bell

**Date Reported:** 10-15-08 **Time:** 8:35 AM **Reported by:** Denise Mosca

**Receiving Facility Name** Omega Protein **Permit No.:** VA0003867

**Owner of Conveyance** \_\_\_\_\_  
 (if different from receiving facility)

**Address:** P.O. Box 175

**County/City:** Reedville **Zip:** 22539

**Contact at Scene:** Bill Purcell **Telephone No.:** 804-453-4211

**Date of Incident** 10-15-08 **Time of Incident:** Prior to 8:35 AM

**Length of Time Discharge Continued:** Until October 17, 2008

**Volume of Discharge (gal):** 5000 gal est.

**Description of Nature and Location of Discharge**

Pipe to aerated lagoons leaking. No wastewater was released to state waters. Pipe was repaired and will be replaced after the season finishes next month.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Affected Body of Water (if applicable):** \_\_\_\_\_

**Has the Virginia Department of Health (VDH) Been Notified?** ☐ Yes ☒ No

(Contact VDH if a drinking water supply or shellfish waters may be impacted)

**Note to Facility:** This report can also serve as your five day letter if the discharge has been stopped and you attach a description of the steps planned or taken to reduce, eliminate, and prevent a recurrence of present or any future discharges not authorized by a permit.



October 21, 2008

Mr. James R. Bell, Water Compliance Manager  
Virginia Dept of Environmental Quality  
Piedmont Regional Office  
4949-A Cox Road  
Glen Allen, VA 23060

Re: VA0003867 – 5 Day Letter

Dear Mr. Bell: *JB*

We discovered the leak in the pipe carrying condensate to our aerated ponds (outfall 002) on Oct 16 and completed repairs on Oct 17. The leak was small and no condensate reached state waters. As I stated in my earlier email we will be replacing the entire line during the upcoming off season so hopefully the problem will permanently corrected.

If you require additional information please contact me directly.

Sincerely,  
*William Purcell*  
William Purcell  
Environmental Director  
Omega Protein, Inc.

pc: Bob LaBruzzo, Omega Protein



October 29, 2008

Ms. Denise Mosca, Environmental Engineer Senior  
Virginia Dept of Environmental Quality  
Piedmont Regional Office  
4949-A Cox Road  
Glen Allen, VA 23060

Re: Phosphorus Progress Report

Dear Ms Mosca:

*Denise*

We conducted a pilot study using a dissolved air flotation (DAF) unit on the aerated lagoon effluent (outfall 002). The results were highly successful at reducing all pollutants including phosphorus. Before treatment in the DAF total P concentration was 1.9 mg/L and following treatment the concentration was 0.17 mg/L a 10 fold reduction in concentration. If you are interested in seeing pictures of the treated and untreated effluent let me know and I will forward them to you. I will keep you apprised of our progress.

Sincerely,

*Bill*

William E. Purcell  
Director of Environmental Affairs  
Omega Protein, Inc.

pc: Tom Wittman, Omega Protein  
Bob LaBruzzo, Omega Protein  
Bill Black, EnPro  
Kyle Winter, Deputy Regional Director PRO  
Ted Schultz, Omega Protein

V A0003867  
R-G-R4

**Mosca, Denise**

---

**From:** Bill Purcell [bpurcell@OmegaProteinInc.com]  
**Sent:** Wednesday, October 29, 2008 3:21 PM  
**To:** Mosca, Denise  
**Cc:** Tom Wittmann; Bill Black; Bob LaBruzzo; Winter, Kyle; Ted Schultz  
**Subject:** Phosphorus Progress Report  
**Attachments:** phos-progress.pdf

Attached is the phosphorus progress report

William E. Purcell  
Environmental Director  
Omega Protein, Inc.  
P.O. Box 175  
610 Menhaden Road  
Reedville, Virginia 22539  
[bpurcell@omegaproteininc.com](mailto:bpurcell@omegaproteininc.com)  
Phone (804) 453-4211  
Cell (804) 387-2784  
Fax (804) 453-4123

## Mosca,Denise

**From:** Bill Purcell [bpurcell@OmegaProteinInc.com]  
**Sent:** Thursday, October 30, 2008 4:59 PM  
**To:** Mosca,Denise  
**Subject:** RE: Leaking pipe

Difficult to really estimate the volume because we didn't excavate until we had the part to repair the leak and the volume was either absorbed before it reached the surface or soaked into the the soil around the leak. Guessing the volume would be 5000 gallons Yes that was a typo it should have said 15th.

William E. Purcell  
 Environmental Director  
 Omega Protein, Inc.  
 P.O. Box 175  
 610 Menhaden Road  
 Reedville, Virginia 22539  
[bpurcell@omegaproteininc.com](mailto:bpurcell@omegaproteininc.com)  
 Phone (804) 453-4211  
 Cell (804) 387-2784  
 Fax (804) 453-4123

---

**From:** Mosca,Denise [mailto:dmmosca@deq.virginia.gov]  
**Sent:** Thursday, October 30, 2008 2:06 PM  
**To:** Bill Purcell  
**Subject:** RE: Leaking pipe

Thanks. Did you mean to say the leak started on 10/16 because your email to JR was sent on the morning of the 15<sup>th</sup>. Is there an estimate of what volume wastewater was lost? Here's a copy of the form we use now, if you'd like to use it next time.  
 Denise

Denise Mosca  
 Environmental Specialist II  
 DEQ-Piedmont Regional Office  
 4949-A Cox Road,  
 Glen Allen, Va. 23060  
 (804) 527-5027  
 fax (804) 527-5106

---

**From:** Bill Purcell [mailto:bpurcell@OmegaProteinInc.com]  
**Sent:** Thursday, October 30, 2008 11:47 AM  
**To:** Mosca,Denise  
**Subject:** RE: Leaking pipe

Sent to JR...here it again

William E. Purcell  
 Environmental Director  
 Omega Protein, Inc.  
 P.O. Box 175  
 610 Menhaden Road  
 Reedville, Virginia 22539

Aug 2008  
bpurcell@omegaproteininc.com  
Phone (804) 453-4211  
Cell (804) 387-2784  
Fax (804) 453-4123

---

**From:** Mosca,Denise [mailto:dmmosca@deq.virginia.gov]  
**Sent:** Thursday, October 30, 2008 10:28 AM  
**To:** Bill Purcell  
**Subject:** FW: Leaking pipe

Hi Bill—  
This bureaucrat has a form to fill out about this, so I was wondering about the 5-day letter...JR said he didn't think he's seen it.  
Denise

Denise Mosca  
Environmental Specialist II  
DEQ-Piedmont Regional Office  
4949-A Cox Road,  
Glen Allen, Va. 23060  
(804) 527-5027  
fax (804) 527-5106

---

**From:** Bell,James  
**Sent:** Wednesday, October 15, 2008 11:00 AM  
**To:** Mosca,Denise; Winter,Kyle  
**Cc:** Bishop,Patrick  
**Subject:** FW: Leaking pipe

J.R. Bell, Jr.  
Water Compliance Manager  
804-527-5025  
804-527-5106 (fax)

---

**From:** Bill Purcell [mailto:bpurcell@OmegaProteinInc.com]  
**Sent:** Wednesday, October 15, 2008 8:35 AM  
**To:** Bell,James  
**Subject:** Leaking pipe

The pipe to the aerated lagoon is leaking again. Most if not all of the leak is not reaching state waters but is either in containment in one direction or in a depression and soaking into the ground in the other. We are getting a backhoe in to do the excavation today and replace the offending section. We will be replacing the entire line this next off season. I is becoming obvious that the pipe has out lived its useful life. I will send you a letter with the details when we get repaired.

Thanks Bill

William E. Purcell  
Environmental Director  
Omega Protein, Inc.



**Mosca,Denise**

**From:** Bill Purcell [bpurcell@OmegaProteinInc.com]  
**Sent:** Thursday, October 30, 2008 4:59 PM  
**To:** Mosca,Denise  
**Subject:** RE: Leaking pipe

Difficult to really estimate the volume because we didn't excavate until we had the part to repair the leak and the volume was either absorbed before it reached the surface or soaked into the the soil around the leak. Guessing the volume would be 5000 gallons Yes that was a typo it should have said 15th.

William E. Purcell  
Environmental Director  
Omega Protein, Inc.  
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610 Menhaden Road  
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Phone (804) 453-4211  
Cell (804) 387-2784  
Fax (804) 453-4123

---

**From:** Mosca,Denise [mailto:dmmosca@deq.virginia.gov]  
**Sent:** Thursday, October 30, 2008 2:06 PM  
**To:** Bill Purcell  
**Subject:** RE: Leaking pipe

Thanks. Did you mean to say the leak started on 10/16 because your email to JR was sent on the morning of the 15<sup>th</sup>. Is there an estimate of what volume wastewater was lost? Here's a copy of the form we use now, if you'd like to use it next time.  
Denise

Denise Mosca  
Environmental Specialist II  
DEQ-Piedmont Regional Office  
4949-A Cox Road,  
Glen Allen, Va. 23060  
(804) 527-5027  
fax (804) 527-5106

---

**From:** Bill Purcell [mailto:bpurcell@OmegaProteinInc.com]  
**Sent:** Thursday, October 30, 2008 11:47 AM  
**To:** Mosca,Denise  
**Subject:** RE: Leaking pipe

Sent to JR...here it again

William E. Purcell  
Environmental Director  
Omega Protein, Inc.  
P.O. Box 175  
610 Menhaden Road  
Reedville, Virginia 22539

10/30/2008

[bpurcell@omegaproteininc.com](mailto:bpurcell@omegaproteininc.com)  
Phone (804) 453-4211  
Cell (804) 387-2784  
Fax (804) 453-4123

---

**From:** Mosca,Denise [<mailto:dmmosca@deq.virginia.gov>]  
**Sent:** Thursday, October 30, 2008 10:28 AM  
**To:** Bill Purcell  
**Subject:** FW: Leaking pipe

Hi Bill—  
This bureaucrat has a form to fill out about this, so I was wondering about the 5-day letter...JR said he didn't think he's seen it.  
Denise

Denise Mosca  
Environmental Specialist II  
DEQ-Piedmont Regional Office  
4949-A Cox Road,  
Glen Allen, Va. 23060  
(804) 527-5027  
fax (804) 527-5106

---

**From:** Bell,James  
**Sent:** Wednesday, October 15, 2008 11:00 AM  
**To:** Mosca,Denise; Winter,Kyle  
**Cc:** Bishop,Patrick  
**Subject:** FW: Leaking pipe

J.R. Bell, Jr.  
Water Compliance Manager  
804-527-5025  
804-527-5106 (fax)

---

**From:** Bill Purcell [<mailto:bpurcell@OmegaProteinInc.com>]  
**Sent:** Wednesday, October 15, 2008 8:35 AM  
**To:** Bell,James  
**Subject:** Leaking pipe

The pipe to the aerated lagoon is leaking again. Most if not all of the leak is not reaching state waters but is either in containment in one direction or in a depression and soaking into the ground in the other. We are getting a backhoe in to do the excavation today and replace the offending section. We will be replacing the entire line this next off season. I is becoming obvious that the pipe has out lived its useful life. I will send you a letter with the details when we get repaired.

Thanks Bill

William E. Purcell  
Environmental Director  
Omega Protein, Inc.

10/30/2008

**Bishop,Patrick**

---

**From:** Winter,Kyle  
**Sent:** Friday, December 19, 2008 11:38 AM  
**To:** Bishop,Patrick  
**Subject:** FW: 5-Day letter  
**Attachments:** 5dayletter.pdf

Kyle Ivar Winter, P.E.  
Deputy Regional Director, PRO  
4949-A Cox Road  
Glen Allen, VA 23060  
(804) 527-5052  
[kiwinter@deq.virginia.gov](mailto:kiwinter@deq.virginia.gov)

---

**From:** Bill Purcell [<mailto:bpurcell@OmegaProteinInc.com>]  
**Sent:** Friday, December 19, 2008 11:36 AM  
**To:** Winter,Kyle; Mosca,Denise  
**Cc:** Bob LaBruzzo; Ted Schultz; Jane Crowther  
**Subject:** 5-Day letter

Attached is the 5-day letter for the spill that occurred yesterday.  
Thanks Bill

William E. Purcell  
Environmental Director  
Omega Protein, Inc.  
P.O. Box 175  
610 Menhaden Road  
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UPDES 3492

RR/L

December 19, 2008

Mr. Kyle Winter, P.E. Deputy Regional Director  
Virginia Dept of Environmental Quality  
Piedmont Regional Office  
4949-A Cox Road  
Glen Allen, VA 23060

Re: VA0003867 - 5 Day Letter

Dear Mr. Winter: *Kyle*

A discharge of soapstock was found coming from our tank containment structure located at our fish oil refinery the morning of December 18, 2008. The discharge was the result of a leaking mechanical seal on a pump located within the tank farm containment. The discharge valve for the containment structure had been left open allowing approximately 50 gallons of soapstock mixed with 550 gallons of water to escape to the natural drainage leading to the salt pond adjacent to our aerated lagoons. Upon discovery we blocked the culvert and used our vacuum truck to pump the soapstock back into the refinery. Measured pH of the discharge was 6.6 - 6.5 SU. No more than 5 gallons made it to the salt pond with no visible impacts. The clean up was completed this morning. To prevent further incidents of this type the refinery is looking into automated valves that close after a specified amount of time. Pictures were taken before and after clean up. If you need additional information you have my contact information.

Sincerely,

*Bill*

William Purcell  
Environmental Director  
Omega Protein, Inc.

pc: Bob LaBruzzo  
Jane Crowther  
Denise Mosca

## **Mosca,Denise**

---

**From:** Bill Purcell [bpurcell@OmegaProteinInc.com]  
**Sent:** Thursday, December 04, 2008 7:49 AM  
**To:** Mosca,Denise; Jones,Kevin; Bishop,Patrick; Jenkins,Ray  
**Cc:** Ted Schultz; Bob LaBruzzo; Andy Hall  
**Subject:** RE: AMPRO Fisheries - Reedville, VA

We have three 500,000 tanks standing empty at the old Ampro site. We pumped the tank bottoms and the tanks are available if the need arises.

William E. Purcell  
Environmental Director  
Omega Protein, Inc.  
P.O. Box 175  
610 Menhaden Road  
Reedville, Virginia 22539  
[bpurcell@omegaproteininc.com](mailto:bpurcell@omegaproteininc.com)  
Phone (804) 453-4211  
Cell (804) 387-2784  
Fax (804) 453-4123

---

**From:** Mosca,Denise [mailto:dmmosca@deq.virginia.gov]  
**Sent:** Tuesday, December 02, 2008 5:34 PM  
**To:** Jones,Kevin; Bishop,Patrick; Jenkins,Ray  
**Cc:** Bill Purcell  
**Subject:** RE: AMPRO Fisheries - Reedville, VA

Ampro Fisheries and Ampro Shipyard are 2 different places. Ampro Fisheries in Reedville merged with Omega and Ampro Shipyard in Weems stayed separate. Bill Purcell should know about the status of the tanks.

Denise

Denise Mosca

Environmental Specialist II

DEQ-Piedmont Regional Office

4949-A Cox Road,

Glen Allen, Va. 23060

(804) 527-5027

fax (804) 527-5106

---

**From:** Jones,Kevin  
**Sent:** Tuesday, December 02, 2008 3:03 PM  
**To:** Bishop,Patrick; Jenkins,Ray  
**Cc:** Mosca,Denise

7/14/2009

**Subject:** RE: AMPRO Fisheries - Reedville, VA

Thanks Pat.

Denise,

Do you know if the Aboveground Storage Tanks are still in use? I have seen them from the opposite shore, but we have not heard from them since Omega Protein purchased the business.

Kevin

---

**From:** Bishop,Patrick  
**Sent:** Tuesday, December 02, 2008 2:41 PM  
**To:** Jones,Kevin; Jenkins,Ray  
**Cc:** Mosca,Denise  
**Subject:** RE: AMPRO Fisheries - Reedville, VA

S. Lynn Haynie is the manager for the Ampro Shipyard. P.O. Box 2056, Kilmarnock 22482. (804) 438-6050. Fax (804) 438-5418. Denise is responsible for their VPDES permit and I've heard nothing about it changing hands.

---

**Patrick L. Bishop**

**Virginia Department of Environmental Quality**

**Piedmont Regional Office**

**4949-A Cox Road**

**Glen Allen, VA 23060**

**Direct - (804) 527-5127**

**Fax - (804) 527-5106**

**[plbishop@deq.virginia.gov](mailto:plbishop@deq.virginia.gov)**

Always remember that you're unique. Just like everyone else. - Zen proverb

7/14/2009

---

**From:** Jones, Kevin

**Sent:** Tuesday, December 02, 2008 2:37 PM

**To:** Jenkins, Ray; Bishop, Patrick

**Subject:** AMPRO Fisheries - Reedville, VA

Do either of you have a contact for Ampro? Omega Protein bought their 'assets,' but the site may still be used for other purposes.

Kevin

**Mosca,Denise**

---

**From:** Bill Purcell [bpurcell@OmegaProteinInc.com]  
**Sent:** Thursday, December 11, 2008 4:11 PM  
**To:** Mosca,Denise  
**Subject:** RE: Additional Cooling water

No problem meeting limits...simply non-contact cooling water. At least initially we need the cooling water for the condensor cooling. We are looking at the cooling towers ultimately but the \$2 million price tag is a bit steep to swallow in this current business climate. The creek water will be on one side of the condensor and condensed vapor will be on the other side of the stainless steel condensor.

William E. Purcell  
Environmental Director  
Omega Protein, Inc.  
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610 Menhaden Road  
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Phone (804) 453-4211  
Cell (804) 387-2784  
Fax (804) 453-4123

---

**From:** Mosca,Denise [mailto:dmMosca@deq.virginia.gov]  
**Sent:** Thursday, December 11, 2008 4:01 PM  
**To:** Bill Purcell  
**Subject:** RE: Additional Cooling water

So, the discharge from the airless dryers would be in addition to the current flow? Permanently? Or will the current units be taken off duty at some transition point? Would there be any problem with meeting current temperature and pH limits and future metals limits?  
D.

Denise Mosca  
Environmental Specialist II  
DEQ-Piedmont Regional Office  
4949-A Cox Road,  
Glen Allen, Va. 23060  
(804) 527-5027  
fax (804) 527-5106

---

**From:** Bill Purcell [mailto:bpurcell@OmegaProteinInc.com]  
**Sent:** Thursday, December 11, 2008 8:36 AM  
**To:** Mosca,Denise  
**Cc:** Bob LaBruzzo  
**Subject:** Additional Cooling water

Denise,  
Do we need to give you anything if we increase our non-contact cooling water flow? The flow would be withdrawn from the same structure and discharged out the concrete ditch with the other non-contact cooling water (995). Flow would be for the airless dryers and would be approximately an additional 4000 gpm.

Thanks Bill



**Mosca,Denise**

---

**From:** Mosca,Denise  
**Sent:** Monday, December 15, 2008 11:28 AM  
**To:** Bill Purcell  
**Subject:** RE: Additional Cooling water

Curt seemed to think there was a concern about shifting flow from one outfall location to another, that it wasn't in conformance with the permit application. That could be a potential impact to threatened and endangered species, especially since the flow would be shifted from an outfall with a diffuser to one that did not have one. The mass balance I did in the fact sheet to support the temperature limit could be affected, though I used those max flows you said you didn't know how they came up with them. Curt didn't think that any of the minor modification circumstances particularly fit the bill, and I think the potential for public interest was significantly great that it was the deciding factor to do everything "by the book".  
Denise

Denise Mosca  
Environmental Specialist II  
DEQ-Piedmont Regional Office  
4949-A Cox Road,  
Glen Allen, Va. 23060  
(804) 527-5027  
fax (804) 527-5106

---

**From:** Bill Purcell [mailto:bpurcell@OmegaProteinInc.com]  
**Sent:** Monday, December 15, 2008 11:02 AM  
**To:** Mosca,Denise  
**Subject:** RE: Additional Cooling water

do we need anything if we don't increase flow. we have plenty delta T for the heat exchanger

William E. Purcell  
Environmental Director  
Omega Protein, Inc.  
P.O. Box 175  
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Phone (804) 453-4211  
Cell (804) 387-2784  
Fax (804) 453-4123

---

**From:** Mosca,Denise [mailto:dmmosca@deq.virginia.gov]  
**Sent:** Monday, December 15, 2008 9:42 AM  
**To:** Bill Purcell  
**Subject:** RE: Additional Cooling water

OK, I'm at 804-693-9097 today.  
Denise

Denise Mosca  
Environmental Specialist II  
DEQ-Piedmont Regional Office  
4949-A Cox Road,

7/14/2009

Glen Allen, Va. 23060  
(804) 527-5027  
fax (804) 527-5106

---

**From:** Bill Purcell [mailto:bpurcell@OmegaProteinInc.com]  
**Sent:** Monday, December 15, 2008 9:30 AM  
**To:** Mosca,Denise  
**Subject:** RE: Additional Cooling water

Thanks I will call you later with some additional info

William E. Purcell  
Environmental Director  
Omega Protein, Inc.  
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Phone (804) 453-4211  
Cell (804) 387-2784  
Fax (804) 453-4123

---

**From:** Mosca,Denise [mailto:dmmosca@deq.virginia.gov]  
**Sent:** Monday, December 15, 2008 8:58 AM  
**To:** Bill Purcell  
**Subject:** RE: Additional Cooling water

Hi Bill—

Kyle said that you would be coming in Thursday to speak to James K. Did you want to try to get together to discuss the citations in 9VAC 25-31-400 that would allow for a minor mod? Curt indicated when we talked about this last week that he would need to see a persuasive justification for one of the listed cases to change his mind about the need for a major mod.  
Denise

Denise Mosca  
Environmental Specialist II  
DEQ-Piedmont Regional Office  
4949-A Cox Road,  
Glen Allen, Va. 23060  
(804) 527-5027  
fax (804) 527-5106

---

**From:** Bill Purcell [mailto:bpurcell@OmegaProteinInc.com]  
**Sent:** Thursday, December 11, 2008 4:11 PM  
**To:** Mosca,Denise  
**Subject:** RE: Additional Cooling water

No problem meeting limits...simply non-contact cooling water. At least initially we need the cooling water for the condensor cooling. We are looking at the cooling towers ultimately but the \$2 million price tag is a bit steep to swallow in this current business climate. The creek water will be on one side of the condensor and condensed vapor will be on the other side of the stainless steel condensor.

William E. Purcell  
Environmental Director  
Omega Protein, Inc.  
P.O. Box 175

7/14/2009

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Phone (804) 453-4211  
Cell (804) 387-2784  
Fax (804) 453-4123

---

**From:** Mosca,Denise [<mailto:dmmosca@deq.virginia.gov>]  
**Sent:** Thursday, December 11, 2008 4:01 PM  
**To:** Bill Purcell  
**Subject:** RE: Additional Cooing water

So, the discharge from the airless dryers would be in addition to the current flow? Permanently? Or will the current units be taken off duty at some transition point? Would there be any problem with meeting current temperature and pH limits and future metals limits?  
D.

Denise Mosca  
Environmental Specialist II  
DEQ-Piedmont Regional Office  
4949-A Cox Road,  
Glen Allen, Va. 23060  
(804) 527-5027  
fax (804) 527-5106

---

**From:** Bill Purcell [<mailto:bpurcell@OmegaProteinInc.com>]  
**Sent:** Thursday, December 11, 2008 8:36 AM  
**To:** Mosca,Denise  
**Cc:** Bob LaBruzzo  
**Subject:** Additional Cooing water

Denise,  
Do we need to give you anything if we increase our non-contact cooling water flow? The flow would be withdrawn from the same structure and discharged out the concrete ditch with the other non-contact cooling water (995). Flow would be for the airless dryers and would be approximately an additional 4000 gpm.

Thanks Bill

William E. Purcell  
Environmental Director  
Omega Protein, Inc.  
P.O. Box 175  
610 Menhaden Road  
Reedville, Virginia 22539  
[bpurcell@omegaproteininc.com](mailto:bpurcell@omegaproteininc.com)  
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Cell (804) 387-2784  
Fax (804) 453-4123

7/14/2009

**Mosca, Denise**


---

**From:** Linderman, Curtis  
**Sent:** Tuesday, April 14, 2009 10:41 AM  
**To:** Mosca, Denise  
**Cc:** Winter, Kyle; Weeks, Richard  
**Subject:** FW: Omega Protein Metal Sampling  
**Attachments:** Metals-data Cockrell Ck.xls; sample-locations.pdf

Denise, attached are metals data provided to CO from Omega. It appears they have collected both water column and effluent data; the lab results are found in the attached Excel spreadsheet. In the spreadsheet, you'll need to scroll past the water column data to the bottom of the listings for the copper, silver, and zinc data collected at outfall 995. It appears six data values are reported, corresponding to the June 2008-November 2008 period. In talking with Fred, it sounds like the max QL requirements in the permit may be driving Omega's choice of analysis methods which, in turn, Omega believes may expose them to potential brackish water interference issues. Fred said he talked with Wayne Staples regarding the interference claim, but it didn't sound like they've had time to corroborate the claim, its potential magnitude or significance, or whether it applies broadly for that method to all brackish situations. It would probably be worth following up with CO. You may also need to confirm with Omega the QLs used in reporting their "<QL" zinc and silver results.

Regardless, Omega did not give any indication that the data set used at re-issuance is erroneous or false. Consequently, please evaluate the attached data cumulatively with the data set used at re-issuance to determine whether there is a continued need for limits. Thanks.

---

**From:** Cunningham, Frederick  
**Sent:** Monday, April 13, 2009 1:52 PM  
**To:** Linderman, Curtis  
**Subject:** FW: Omega Protein Metal Sampling

FYI

**Fred K. Cunningham**, Director  
 Office of Water Permits & Compliance Assistance  
 Virginia Department of Environmental Quality  
 phone: 804.698.4285  
 fax: 804.698.4032

---

**From:** Gilinsky, Ellen  
**Sent:** Wednesday, April 08, 2009 10:59 AM  
**To:** Cunningham, Frederick  
**Subject:** FW: You still Celebrating?

Fred can you and Steve get with Kyle and Curt to discuss this information - sounds like in addition to considering whether or not we even need such a limit in the permit, if we do keep it we should change the method that is specified to one appropriate for brackish water.

*Ellen Gilinsky, Ph.D.*  
 Director, Water Division  
 Virginia Department of Environmental Quality  
 629 E Main Street  
 Richmond, Virginia 23219

4/23/2009

**Mailing Address**

P.O. Box 1105  
Richmond, Virginia 23218

804-698-4375 (phone)

804-698-4032 (fax)

[egilinsky@deq.virginia.gov](mailto:egilinsky@deq.virginia.gov)

---

**From:** Bill Purcell [<mailto:bpurcell@OmegaProteinInc.com>]

**Sent:** Tuesday, April 07, 2009 9:03 AM

**To:** Gilinsky, Ellen

**Cc:** Bill Purcell

**Subject:** You still Celebrating?

Enjoyed the beat down last night and was closer than it should have been but Williams kept his players rested. I never thought I would say this but I rooted for UNC and would have pulled for any ACC in the same circumstance. The game demonstrated the benefit of having senior players on the floor. They played a good clean tough game.

Now on another note I have attached the metals data we discussed during the meeting with Dave. All of the Cockrell creek analysis was conducted axial ICP which is the best method for reducing the interference found in salt/brackish waters. Analysis for 995 was conducted using graphite furnace which has a lower detection but has interference problems in saline samples. The permit dictated we use graphite furnace. All analysis was conducted by Air Water and Soil Labs in Richmond and for consistency the samples were acidified by the lab using trace metals acid. If you have any questions let me know.

Bill

William E. Purcell  
Environmental Director  
Omega Protein, Inc.  
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Cell (804) 387-2784  
Fax (804) 453-4123

4/23/2009

## Mosca, Denise

---

**From:** Bill Purcell [bpurcell@OmegaProteinInc.com]

**Sent:** Wednesday, April 29, 2009 11:04 AM

**To:** Buehler, Arthur; Mosca, Denise

**Subject:** RE: Monthly Discharge Days for 2008

### Day in which we discharge from at least one outfall

---

Discharge Day	
Jan-08	0
Feb-08	0
Mar-08	0
Apr-08	0
May-08	2
Jun-08	26
Jul-08	30
Aug-08	28
Sep-08	26
Oct-08	19
Nov-08	8
Dec-08	6
<b>Total</b>	<b>145</b>

William E. Purcell

Environmental Manager

Omega Protein, Inc.

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[bpurcell@omegaproteininc.com](mailto:bpurcell@omegaproteininc.com)

Phone (804) 453-4211

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Fax (804) 453-4123

**From:** Buehler, Arthur [mailto:Arthur.Buehler@deq.virginia.gov]  
**Sent:** Wednesday, April 29, 2009 9:00 AM  
**To:** Mosca, Denise  
**Cc:** Bill Purcell  
**Subject:** RE: Monthly Discharge Days for 2008

Great, thanks.

---

**From:** Mosca, Denise  
**Sent:** Wednesday, April 29, 2009 8:55 AM  
**To:** Buehler, Arthur  
**Subject:** FW: Monthly Discharge Days for 2008

Bill said he'd get the information this AM.

Denise

Denise Mosca

Environmental Specialist II

DEQ-Piedmont Regional Office

4949-A Cox Road,

Glen Allen, Va. 23060

(804) 527-5027

fax (804) 527-5106

---

**From:** Bill Purcell [mailto:bpurcell@OmegaProteinInc.com]  
**Sent:** Wednesday, April 29, 2009 8:23 AM  
**To:** Mosca, Denise  
**Subject:** RE: Monthly Discharge Days for 2008

Give me a few hours...have conference call with my many bosses this AM. You understand we are going to eliminate contact cooling water and 002 this year. The only point sources will be non-contact cooling water. We would be ready to at the beginning of this season but the air folks took forever to get us a permit to reduce

7/14/2009



our air emissions.

William E. Purcell

Environmental Director

Omega Protein, Inc.

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Cell (804) 387-2784

Fax (804) 453-4123

---

**From:** Mosca, Denise [mailto:Denise.Mosca@deq.virginia.gov]

**Sent:** Wednesday, April 29, 2009 8:16 AM

**To:** Bill Purcell

**Subject:** Monthly Discharge Days for 2008

Hi Bill—

Do you have the number of discharge days for each month of Omega's 2008 operating season readily available? Art Buehler is looking for that information to provide EPA with a better picture of nutrient loadings. He said if the information isn't easily obtainable he would estimate.

Thanks,

Denise

Denise Mosca

Environmental Specialist II

DEQ-Piedmont Regional Office

4949-A Cox Road,

7/14/2009



**Mosca, Denise**

---

**From:** Linderman, Curtis  
**Sent:** Friday, June 19, 2009 10:13 AM  
**To:** Winter, Kyle  
**Cc:** Mosca, Denise  
**Subject:** RE: Permit application question

If they are willing to take the risk that discharges from outfall 001 will be eliminated – **and the outfall properly closed out** – before the current permit expires, then the need to perform the required application testing at 001 does not appear compelling. However, if they elect not to do the testing and the project either experiences scheduling delays or the outfall is not completely closed out, they risk having an incomplete application and may not be eligible for administrative continuance if the permit were to expire.

---

**From:** Winter, Kyle  
**Sent:** Friday, June 19, 2009 9:57 AM  
**To:** Linderman, Curtis  
**Subject:** FW: Permit application question

What's your opinion on this?

Kyle Ivar Winter, P.E.  
Deputy Regional Director, PRO  
4949-A Cox Road  
Glen Allen, VA 23060  
(804) 527-5052  
[kiwinter@deq.virginia.gov](mailto:kiwinter@deq.virginia.gov)

---

**From:** Bill Purcell [<mailto:bpurcell@OmegaProteinInc.com>]  
**Sent:** Friday, June 19, 2009 9:53 AM  
**To:** Winter, Kyle  
**Cc:** Bill Purcell; Ted Schultz; Andy Hall; Tom Wittmann  
**Subject:** Permit application question

Kyle,

Hope things are going well with you. We are preparing to do the necessary testing to renew the VPDES permit and our discharge 001 which is contact cooling water and effluent from the salt water scrubbers. With the conversion to the new dryers the scrubbers will go away as will the need for 001. I would anticipate sending all the non-contact cooling water out 995 and eliminating 001. Do you see a need to sample for 001 for permit renewal. Permit expires 12/2010 and scrubbers should go offline in September of this year.

Thanks Bill

William E. Purcell  
Environmental Manager  
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Fax (804) 453-4123

23/2009



Healthy Products for a Healthy World

April 4, 2008

RECEIVED  
APR 07 2008  
PRO

Denise Mosca, Environmental Specialist II  
Virginia Department of Environmental Quality  
4949-A Cox Road  
Glen Allen, Virginia 23060

Re: VPA permit Issuance VPA01428

Dear Ms. Mosca

*Denise*

This letter is in response to your letter of September 13, 2007 regarding comments on our VPA application. The data set has been corrected as outlined in the second paragraph of your letter. Calculations have been corrected using the appropriate data. An aluminum loading calculation is attached. The PAN/DT calculations were revised. Also corrected were the land area determinations to allow for a 25 foot buffer for improved roadways.

We have re-submitted a revised Form C with the corrected attachments. Not re-submitted are the USDA, boundary map and Swift Creek Environmental attachments to the original application.

Sincerely,

*Bill*

William Purcell  
Environmental Director  
Omega Protein, Inc.

pc: Tom Wittman, Omega Protein  
Bob LaBruzzo, Omega Protein  
Bill Black, EnPro

Attachments

VIRGINIA POLLUTION ABATEMENT  
PERMIT APPLICATION

FORM C  
INDUSTRIAL WASTE  
Revised March 2008

Department of Environmental Quality

## VPA FORM C INDUSTRIAL WASTE INSTRUCTIONS

This form is to be completed by applicants requesting a VPA permit for industrial waste management systems. All industrial applicants must submit Part I of Form C. Part II must be submitted by applicants who use land application treatment systems for wastewater or sludge. In addition, certain industrial categories may be required to submit more information than this application requests. A preliminary meeting with the local DEQ Regional Office is recommended prior to completing any part of Form C.

### PART C-I

1. **FACILITY NAME:** Name as given on Form A line 1.

2. **SOURCE OF WASTE:**

a. The applicant should supply a short description of the specific manufacturing operation at the facility.

b. A line drawing, in block diagram form, is to be furnished. Show the various steps or units of the manufacturing or processing operations, all points where industrial wastes or other wastes are produced, the volume of wastes generated at each location, and their method of disposal. List raw materials and show the points where they enter the process. Finished products and the points where they emerge from the process are also to be shown.

c. Describe how sewage from employees is handled. (i.e., does it go to a septic tank/drainfield, local sanitary sewerage system, etc.).

d. In the space provided, show the maximum and average hours/day and days/week of operation and the specific months of operation.

3. **NON-HAZARDOUS DECLARATION:** All industrial facilities must sign this declaration in order for the application to be complete. The signature must be in accordance with DEQ's Permit Regulation. The applicant should evaluate waste characteristics as required by Federal and State Regulations to determine if it is hazardous or non-hazardous (TCLP or other tests required by Department of Environmental Quality). If identified as hazardous, it should be processed as a hazardous waste according to the requirements of RCRA and State Regulations through the Department of Environmental Quality.

4. **WASTE CHARACTERIZATION:** Waste characterization applies to waste being removed from the waste management system. For land application operations, analysis should be conducted on waste to be land applied. For proposed operations, estimates may be used based on the characteristics of similar facilities. Provide the references to identify the similar facility.

The applicant is required to test for all parameters listed in 4.a. and/or 4.b., whichever group of parameters are appropriate. Should you feel that any of the required parameters are not appropriate for your operation, you may request in writing that the testing requirement be waived. The letter should accompany the VPA application when a submission is made. It must be pointed out that your waiver request should be reviewed with a

DEQ Regional Office permit writer before the waiver is requested. Enough information must be available on characteristics of the waste to support issuance of the VPA permit. If the waiver request is denied, then the entire application package will be returned incomplete.

DEQ places great importance on waste characterization. In Item 4.c., the applicant is requested to indicate if a parameter (not listed in 4.a. and/or 4.b.) is believed present or absent. If believed present, at least one analysis should be conducted. If the application is for both wastewater and sludge, make an additional copy of Part 4.c and answer for both.

If the application is for a waste management system that uses recycling, the waste characterization may be substituted by supporting documentation, for example, MSDS sheets.

5. **POLLUTANT MANAGEMENT FACILITIES:** Provide a detailed flow chart in block diagram form showing the interrelation of all the treatment facilities. Include handling, treatment storage and disposal units in this chart. Recycle systems are also to be included for this application requirement.

**OPERATIONS:** Using the above flow diagram as a reference, describe the pollutant management operation of each unit and the system as a whole.

6. Please indicate the type and number of waste treatment units or storage facilities at your operation. Please also indicate if the facility is proposed or existing.

7. All waste treatment, storage facilities and land application sites must be approved by the Department of Environmental Quality. If the existing facilities have not been approved, it will be necessary to submit a conceptual engineering report. It is also suggested that you discuss this matter with a representative of a DEQ Regional Office before submitting the report.

8. If previously approved facilities have been expanded, a conceptual engineering report must be submitted to DEQ for approval for the expanded unit(s) as required by the application.

9. **CONCEPTUAL DESIGN:** Waste management facilities require technical expertise in the planning, design and construction phases of the project to insure that 1) the facility will meet the operational needs of the owner, 2) the facility is structurally sound and 3) the treatment system meets all necessary regulatory requirements. Detailed discussion of plans and specifications for the structural stability of the treatment works are beyond the scope of these instructions. Such expertise is available to owners through private engineering firms and Virginia universities. It should be emphasized that the structural integrity of all facilities is the responsibility of the owner.

Applicants should provide design information and/or calculations such as capacities, construction materials, flow directions, loading rates and water balance figures for the waste management structure and any associated piping and pumps. The following areas should be considered in preparing the conceptual design.

**STORAGE/TREATMENT FACILITY CAPACITY:** Facilities must be designed and operated to prevent point source discharge of pollutants to State waters except in the case of a 25 year-24 hour or greater storm event.

DEQ recommends the storage capacity be sufficient to ensure that wastes do not have to be applied to the land when the ground is ice or snow covered, too wet or during periods when fields are unavailable for waste utilization because of the cropping plan. A minimum 60-day storage capacity for wastewater or sludge is recommended to be designed into all pollution abatement facilities.

DEQ suggests that the storage facilities have a 2 ft. freeboard at all times.

**GROUND WATER PROTECTION:** Storage facilities and treatment works must be designed and operated to ensure compliance with the provisions of the Water Quality Standards for ground water. DEQ suggests that liners be installed in earthen storage facilities located in rapidly permeable soils ( $> 2.0$  in/hr) or where Karst geology or shallow and fractured rock is encountered.

The Department of Environmental Quality requires lagoon liners to have a maximum coefficient of permeability of  $1 \times 10^{-6}$  cm/sec. It is recommended that soils used as liners be capable of achieving a maximum coefficient of permeability of  $1 \times 10^{-7}$  cm/sec or less. Total soil liner thickness should be one foot after compaction of two separate lifts of equal thickness.

Synthetic liners are preferred and should be a minimum of 20 mil. thickness, appropriate for the type wastewater, and be appropriately protected from puncture both below and above the liner. The liner should clearly be installed according to

manufacturers specifications. Such specifications should also include recommendations, if any, for periodically inspecting the integrity of the liner.

A 2-foot separation distance between the facility bottom and the seasonal high water table is recommended.

**WASTE VOLUMES:** Accurate estimates of waste volumes are necessary to calculate properly sized waste holding and treatment facilities. Wastewater from contaminated storm water inputs to the pollution abatement facilities must also be considered, i.e., rainfall on to the facility surface and runoff from

**10. FLOOD POTENTIAL:** DEQ recommends that waste storage structures not be located on a floodplain unless protected from inundation or damage by a 100-year frequency flood event. Consult your local county zoning/planning office for information on flood plain locations and flood protection options. Such information may be available upon request.

**11. Storm water runoff** may be generated by parking lots, plant roofs or by the surrounding terrain. Proposed or existing facilities should be designed to contain the runoff from a 25 year 24 hour

**12. LAND APPLICATION OF WASTES:** Facilities which land apply waste must complete Part C-II.

#### PART C-II

If instructions beyond those in the form are needed, contact the DEQ Regional Office for assistance.

# VIRGINIA POLLUTION ABATEMENT PERMIT APPLICATION

## FORM C

### INDUSTRIAL WASTE

#### PART C-I General Information

1. Facility Name: Omega Protein, Inc.

2. Source(s) of Waste

- a. *Provide a narrative which explains your facility operations and how wastes are produced.*

Menhaden fish caught in the Atlantic Ocean and Chesapeake Bay are steam cooked, then pressed to separate fish meat and liquids. Oil is then separated from water which contains proteins. The water containing proteins is evaporated to a concentrate that can be added back to the fish meal. The condensate from the evaporator contains BOD and ammonia and is, thus, a waste water. There are no chemicals used in this process. The condensate is delivered to biological treatment ponds for the purpose of reducing BOD and ammonia to concentrations allowed by the VPDES permit for discharge. The biological process produces a sludge that settles to the bottom of the pond. For several reasons, the sludge must be periodically removed.

- b. *Attach a line drawing of the facility in block diagram for showing the manufacturing or processing operations and all points where wastes are produced. **Attached***

- c. *Explain how sewage from employees is handled (i.e., septic tank/drainfield, sanitary sewer etc.) -*

All sanitary sewage from employees is delivered to sanitary sewers and to the Reedville Municipal Treatment Plant.

d. **Operational Parameters**

<b>Maximum hours/day of operation:</b>	<u>24 hours per day, maximum</u>
<b>Average hours/day of operation:</b>	<u>18 hours per day average</u>
<b>Days/week of operation:</b>	<u>5 to 6 days per week</u>
<b>Specific months of operation:</b>	<u>May through December</u>

3. **Non-Hazardous Declaration**

a. **Statement for Plant Operations**

**Is any part of the manufacturing operations, plant processes or waste treatment facilities at these plant facilities under the purview of the "Virginia Hazardous Waste Management Regulations" or the "Virginia Solid Waste Management Regulations?"**

Yes \_\_\_\_\_ No XX

**If Yes, please provide a brief explanation of the type of permit or requirements that apply.**

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b. **For waste to be land applied, a responsible person, as defined by VR680-14-01, must sign the following statement.**

**I certify that the waste described in this application is non-hazardous and not regulated under the Resource Conservation and Recovery Act.**

Robert W. La Grange  
(Signature of Owner)

Date April 3, 2008

#### 4. Waste Characterization

- a. *Wastewater - Provide at least one analysis for each parameter. Upon review, additional analyses may be required by DEQ.*

<u>Parameter</u>	<u>Concentration</u>	
Flow to treatment	_____	MGD
Flow to storage	_____	MGD
Vol. to treatment	_____	MG
Vol. to storage	_____	MG
Vol. Land applied	_____	MG/year
BOD5	_____	mg/l
COD	_____	mg/l
TOC	_____	mg/l
TSS	_____	mg/l
Percent Solids	_____	%
pH	_____	S.U.
Alkalinity as CaCO <sub>3</sub>	_____	mg/l
Nitrogen, (Nitrate)	_____	mg/l
Nitrogen, (Ammonium)	_____	mg/l
Nitrogen, (Total Kjeldahl)	_____	mg/l
Phosphorus, (Total)	_____	mg/l
Potassium, (Total)	_____	mg/l
Sodium	_____	mg/l

- b. *Sludge - Provide at least one analysis for each parameter. Upon review, additional analyses may be required by DEQ. See Discussion of Data, attached*

<u>Parameter</u>	<u>Concentration*</u>
Percent Solids	90%
Volatile Solids	<10%
pH	4.0 S.U.
Alkalinity as CaCO <sub>3</sub> **	<5275 mg/kg
Nitrogen (Nitrate)	21 mg/kg
Nitrogen (Ammonium)	900 mg/kg
Nitrogen (Total)	4,100 mg/kg
Phosphorous (as P <sub>2</sub> O <sub>5</sub> )	1,000 mg/kg
Potassium (as K <sub>2</sub> O)	300 mg/kg
Lead	7.8 mg/kg
Cadmium	7.6 mg/kg
Copper	50.55 mg/kg
Nickel	<12 mg/kg
Zinc	11.02 mg/kg
Calcium	1,400 mg/kg
Sulfur	500 mg/kg

\*\* Unless otherwise noted, report results on dry weight basis.

Lime treated sludges (10% or more lime by dry weight) should be analyzed for percent CaCO<sub>3</sub>.



- c. Provide a separate waste characterization listing for each wastewater and sludge generated at the facility. Insert "Yes" beside all parameters believed present and provide at least one analysis for each. Insert "No" beside all parameters believed not present. Indicate "NA" for any parameter already addressed in Item 4a. or 4b.

<u>Parameter</u>	<u>Believed Present</u> (yes or no)	<u>Concentration*</u>
Acidity	yes	80.8%
Acrolein	no	
Boron	yes	0.1 mg/kg
Bromide	no	
Chlorine	no	
Dioxin	no	
Est. CEC	yes	4.8 meg/100g
Fecal Coliform	yes	<200 MPN/gram
Fluoride	no	
Iron	yes	243.1 mg/kg
pH	yes	4.0 mg/kg
Oil & Grease	yes	<1074 mg/kg
Organic Matter	yes	4.8%
Radioactivity	no	
Sodium	yes	5.12 mg/kg
S. Salts	yes	499 mg/kg
Sulfate (as SO <sub>4</sub> )	no	
Sulfide (as S)	no	
Sulfite (as SO <sub>3</sub> )	no	
Surfactants	no	
Total Alpha	no	
Total Aluminum	yes	3,629.4 mg/kg
Total Antimony	no	
Total Arsenic	no	
Total Barium	no	
Total Beryllium	no	
Total Beta	no	
Total Cadmium	no	
Total Chromium	yes	<25 mg/kg
Total Cobalt	yes	2.5 mg/kg
Total Copper	no	
Total Cyanide	no	
Total Lead	no	
Total Magnesium	yes	300 mg/kg
Total Manganese	yes	7.13 mg/kg
Total Molybdenum	no	
Total Mercury	no	
Total Nickel	no	
Total Phenols	no	
Total Radium	no	
Total Radium 226	no	
Total Residual	no	
Total Selenium	no	
Total Silver	no	
Total Thallium	no	
Total Tin	no	
Total Titanium	no	
Total Zinc	no	

\* If the analysis is for sludge, report results on dry weight basis.

c. (Continued)

<u>Parameter</u>	<u>Believed Present</u> (yes or no)	<u>Concentration</u> Unless indicated, all other parameters are "NO" or "NA"
Acrylonitrile	_____	_____
Benzene	_____	_____
Bis(Chloromethyl)Ether	_____	_____
Bromoform	_____	_____
Carbon Tetrachloride	_____	_____
Chlorobenzene	_____	_____
Chlorodibromomethane	_____	_____
Chloroethane	_____	_____
2-Chloroethylvinyl Ether	_____	_____
Chloroform	_____	_____
Dichlorobromomethane	_____	_____
Dichlorodifluoromethane	_____	_____
1,1-Dichloroethane	_____	_____
1,2-Dichloroethane	_____	_____
1,1-Dichloroethylene	_____	_____
1,2-Dichloropropane	_____	_____
1,3-Dichloropropylene	_____	_____
Ethylbenzene	_____	_____
Methyl Bromide	_____	_____
Methyl Chloride	_____	_____
Methylene Chloride	_____	_____
1,1,2,2-Tetrachloroethane	_____	_____
Tetrachloroethylene	_____	_____
Toluene	_____	_____
1,2-TransDichloroethylene1	_____	_____
1,1,-Trichloroethane	_____	_____
1,1,2,-Trichloroethane	_____	_____
Trichloroethylene	_____	_____
Trichlorofluoromethane	_____	_____
Vinyl Chloride	_____	_____
2-Chlorophenol	_____	_____
2,4-Dichlorophenol	_____	_____
2,4-Dimethylphenol	_____	_____
4,6-Dinitro-O-Cresol	_____	_____
2,4-Dinitrophenol	_____	_____
2-Nitrophenol	_____	_____
4-Nitrophenol	_____	_____
P-Chlor-M-Cresol	_____	_____
Pentachlorophenol	_____	_____
Phenol	_____	_____
2,4,6-Trichlorophenol	_____	_____
Acenaphthene	_____	_____
Acenaphthylene	_____	_____
Acenaphthylene	_____	_____
Benidine	_____	_____
Benzo(a)Athracene	_____	_____
Benzo(a)Pyrene	_____	_____
3,4-Benzofluoranthene	_____	_____
Benzo(ghi) Perylene	_____	_____
Benzo(k)Fluoranthene	_____	_____
Bis(2-Chloroethoxy)Methane	_____	_____
Bis(2-Chloroethyl) Ether	_____	_____
Bis(2-Chloroisopropyl)Ether	_____	_____
Bis(2-Ethylhexyl)Phthalate	_____	_____
4-Bromophenyl Phenyl Ether	_____	_____
Butyl Benzyl Phthalate	_____	_____
4-Chlorophenyl Phenyl Ether	_____	_____
2-Chloronaphthalene	_____	_____
Chrysene	_____	_____
Dibenzo(a,h) Anthracene	_____	_____

c. (Continued)

<u>Parameter</u>	<u>Believed Present</u> (yes or no)	<u>Concentration</u> Unless indicated, all other parameters are "NO" or "NA"
1,2-Dichlorobenzene	_____	_____
1,3-Dichlorobenzene	_____	_____
1,4-Dichlorobenzene	_____	_____
3,3'-Dichlorobenzidine	_____	_____
Diethyl Phthalate	_____	_____
Dimethyl Phthalate	_____	_____
Di-N-Butyl Phthalate	_____	_____
2,4-Dinitrotoluene	_____	_____
2,6-Dinitrotoluene	_____	_____
Di-N-Octyl Phthalate	_____	_____
1,2-Diphenylhydrazine(as	_____	_____
Azobenzene)	_____	_____
Fluoranthene	_____	_____
Fluorene	_____	_____
Hexachlorobenzene	_____	_____
Hexachlorobutadiene	_____	_____
Hexachlorocyclopentadiene	_____	_____
Hexachloroethane	_____	_____
Indeno(1,2,3-cd)Pyrene	_____	_____
Isophorone	_____	_____
Naphthalene	_____	_____
Nitrobenzene	_____	_____
N-Nitrosodimethylamine	_____	_____
N-Nitrosodi-N-Propylamine	_____	_____
N-Nitrosodiphenylamine	_____	_____
Phenanthrene	_____	_____
Pyrene	_____	_____
1,2,4 - Trichlorobenzene	_____	_____
Aldrin	_____	_____
a- BHC	_____	_____
a- BHC	_____	_____
a- BHC	_____	_____
a- BHC	_____	_____
Chlordane	_____	_____
4,4'- DDT	_____	_____
4,4'- DDE	_____	_____
4,4'- DDD	_____	_____
Dieldrin	_____	_____
a-Endosulfan	_____	_____
a-Endosulfan	_____	_____
Endosulfan Sulfate	_____	_____
Endrin	_____	_____
Endrin Aldehyde	_____	_____
Heptachlor	_____	_____
Heptachlor Epoxide	_____	_____
PCB - 1242	_____	_____
PCB - 1254	_____	_____
PCB - 1221	_____	_____
PCB - 1232	_____	_____
PCB - 1248	_____	_____
PCB - 1260	_____	_____
PCB - 1016	_____	_____
Toxaphene	_____	_____
Chloromethane	_____	_____
Chlorpyrifos	_____	_____
Demeton	_____	_____
Dichloromethane	_____	_____
(2,4-dichlorophenoxy) acetic	_____	_____
acid (2,4-D)	_____	_____
Di-2-Ethylhexyl Phthalate	_____	_____
MBAS	_____	_____

## c. (Continued)

<u>Parameter</u>	<u>Believed Present</u> (yes or no)	<u>Concentration</u>
Lindane	_____	Unless indicated, all other parameters are "NO" or "NA"
Hydrogen Sulfide	_____	
Siivex	_____	
Tributyltin	_____	
Kepone	_____	
Malathion	_____	
Methoxychlor	_____	
Mirex	_____	
Monochlorobenzene	_____	
Parathion	_____	

- d. *Provide a separate waste characterization listing for each wastewater and sludge generated at the facility. List any additional parameters believed present in the spaces provided below and provide at least one analysis for each.*

[illegible]

5. Briefly describe the design and provide a line drawing of the waste treatment facility which relates the various components of the treatment system including source(s), treatment unit(s), disposal alternatives, and flow estimates from the various process units.

The two treatment ponds are in series. The first pond is designed to reduce BOD using indigenous bacteria. The second pond is designed to reduce ammonia using both indigenous and augmented bacteria. Each pond holds approximately 3 million gallons. The holding basin is designed to store sludge until it can be land applied or other suitable means of disposal. The holding basin holds approximately 50,000 cubic feet. Sludge is manually removed with mechanical excavators from the pond and placed in the holding basin.

6. Indicate the number and type of waste storage facilities. If existing, indicate the volume; DEQ may require additional information upon review.

No.		Existing (Volume)	Proposed
<u>1</u>	<u>WSP</u> Earthen Storage Pond		
<u>1</u>	Storage Pit	50,000 cu. Ft.	
	Anaerobic Lagoon		
	Other		

7. Have the existing storage/treatment facilities identified in Item 5 and 6 above been previously approved by the Department of Environmental Quality?

Yes XX No       

If yes, provide the date of the approval and proceed to Item 8.

Approval Date: 1984 and 2005

If no, provide information required by Items 9, 10, and 11.

8. Have the previously approved facilities been altered or expanded?

Yes        No XX

If yes, it will be necessary to provide the information for such facilities, as required by Items 9 & 10, and 11.

If no, proceed to Item 12.

9. Provide conceptual design for the treatment facilities including design approach used. Explain how ground water will be protected. Demonstration should include soil evaluation, geology, hydrology, and topography. The following information must be provided for each proposed facility identified in Item 6 above and for those existing facilities in Items 7 and 8 which have not been either previously approved or were altered:

- Design calculations for volume (ft<sup>3</sup>) and estimated days of storage
- Description of lining material and permeability
- Plan and cross-sectional views
- Depth to seasonal high water table and separation to permanent water table.

10. Will the proposed waste storage/treatment facilities be located within the 100-year flood plain? Yes \_\_\_\_\_ No no

*If yes, what is the elevation of the 100-year flood plain and elevation of the proposed facilities. Also, how will the waste storage facilities be protected from flooding? (Flood elevation can be obtained from your local county zoning/planning department).*

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11. Will the proposed or existing storage/treatment facilities receive any storm water runoff? Yes \_\_\_\_\_ No no

*If yes, provide total area (square feet, acres, etc.) from which runoff will occur and indicate this area on the line drawing (Item 5).*

Total area: \_\_\_\_\_  
Dimensions: \_\_\_\_\_

12. Will any part of the waste generated at your facility be land applied? Yes xx No \_\_\_\_\_ If yes, Part C-II must be completed.

VIRGINIA POLLUTION ABATEMENT PERMIT APPLICATION

FORM C

INDUSTRIAL WASTE

PART C-II Land Application and Waste Handling Procedure

Facility Name: Omega Protein, Inc.

*Items 1-12 pertain to the land application of industrial sludge/wastewater at frequent and infrequent rates. The applicant may request a waiver in writing for any of the required information if it is not pertinent to their operation.*

1. For each land application site provide a topographic map of sufficient scale (5 foot contour preferred) clearly showing the location of the following features within 0.25 mile of the site. Provide a legend with approximate scale. (See attached Boundary map.)
  - a. Proposed or existing ground water monitoring wells Four wells surround the Net Facility
  - b. General direction of ground water movement TOWARD THE SURFACE WATER
  - c. Water wells, abandoned or operating All water wells are shown on the attached boundary map
  - d. Surface water SHOWN
  - e. Springs NONE
  - f. Public water supply(s) NONE
  - g. Sink holes NONE
  - h. Underground and/or surface mines NONE
  - i. Mine pool (or others) surface water discharge points NONE
  - j. Mining spoil piles and mine dumps NONE
  - k. Quarry(s) NONE
  - l. Sand and gravel pits NONE
  - m. Gas and oil wells NONE
  - n. Diversion ditch(s) NONE
  - o. Agricultural drainage ditch(s) NONE
  - p. Occupied dwellings, including industrial and commercial establishments SHOWN
  - q. Landfills or dumps NONE
  - r. Other unlined impoundments NONE
  - s. Septic tanks and drainfields NONE
  - t. Injection wells NONE
  - u. Rock outcrops NONE
  - v. Soil boring or test pits locations NONE
  - w. Subsurface drainage tile NONE

2. For each land application site provide a site plan of sufficient detail to clearly show any landscape features which will require buffer zones or may limit land application. Provide a legend and clearly mark the field boundaries and property lines. The following landscape features should be delineated. (Required buffers are shown on the boundary map)
  - a. *Drainageways* SHOWN
  - b. *Rock outcrops* NONE
  - c. *Sink holes* NONE
  - d. *Drinking water wells and springs* NONE
  - e. *Monitoring wells* NONE
  - f. *Property lines* Shown
  - g. *Roadways* SHOWN
  - h. *Occupied dwellings* SHOWN
  - i. *Slopes (greater than 8% by slope class)* NONE
  - j. *Wet spots* None
  - k. *Severe erosion (SCS designation)* NONE
  - l. *Frequently flooded soils (SCS designation)* NONE
  - m. *Surface waters* SHOWN
3. Provide a complete description of agronomic practices for each crop to be grown, on field-by-field basis including a nutrient management program, soil and/or plant tissue testing, and the coordination of tillage practices, planting and harvesting schedules and timing of land application. SEE SUPPLEMENT TO PAGE C-II.2
4. Describe all land application methods and any equipment used in the process. See Supplement
5. Provide a detailed soil survey map, preferably photographically based, with the field boundaries clearly marked. (A USDA-SCS soil survey map should be provided, if available.) PROVIDED

Provide a detailed legend for each soil survey map which uses accepted USDA-SCS descriptions of the typifying pedon for each soil series (soil type). Complex associations may be described as a range of characteristics. Soil descriptions should include the following information. SEE USDA ATTACHMENT

- a. *Soil symbol*
- b. *Soil series, textural phase and slope class*
- c. *Depth to seasonal high water table*
- d. *Depth to bedrock*
- e. *Estimated productivity group (for the proposed crop rotation).*
- f. *Estimated infiltration rate (surface soil)*
- g. *Estimated permeability of most restrictive subsoil layer*



6. Representative soil borings for frequent land application and fixed spray irrigations, (to no less than 5 ft. or to the water table) are to be conducted for the typifying pedon of each soil series (soil type) and the following data collected and tests performed. All results for infiltration and permeability tests should be enclosed. Provide information on the items below: See report by Swift Creek Environmental, Inc.
  - a. *Soil symbol*
  - b. *Soil series, textural phase and slope class*
  - c. *Depth to seasonal high water table*
  - d. *Depth to bedrock*
  - e. *Estimated productivity group (for the proposed crop rotation).*
  - f. *Estimated infiltration rate (surface soil)*
  - g. *Estimated permeability of most restrictive subsoil layer*
7. Representative soil samples are to be collected for each major soil type and analyzed for the soil parameters indicated on Page C-II-6. Samples are to be taken at a depth of 0-6 in. SEE ATTACHMENT
8. Land Area Determination:
  - a. *Land area requirements are to be calculated and justified for each of the parameters listed below: SEE SUPPLEMENT TO PAGE C-II.3*

<u>Parameters</u>	<u>Method of Determining Required Area</u>
1. Nitrogen	Crop uptake, immobilization denitrification, leaching
2. Phosphorus	Crop uptake, soil adsorption
3. Potassium	Crop uptake
4. Sulfur	Crop uptake, soil adsorption leaching
5. Salts	Sodium Adsorption Ratio (SAR), leaching
6. Carbon/Nitrogen Ratio	
7. Metals (Ni, Cu, Zn, Pb, Co, Cd or other)	Cumulative loading for site life
8. Anions (As, B, Chlorides)	Leaching, Soil Adsorption
9. Calcium Carbonate Equivalency	Soil pH management
10. Other Parameters (As needed or as requested by DEQ)	

For each parameter and method of assimilation, (i.e. crop uptake, denitrification, immobilization, soil adsorption leaching, etc.), the required land area is to be justified by attaching calculations and appropriate references. Allowances for soil adsorption are to be justified by pertinent soil testing.

Provide calculations describing the nutrient value of the waste as lbs per dry ton or mg/l nitrogen (PAN), phosphorus (P<sub>2</sub>O<sub>5</sub>), potassium (K<sub>2</sub>O), and any liming effects which may occur from land application.

b. Land area requirements for application of industrial wastewater or liquid sludge are to be determined and an annual water balance on a monthly basis developed integrating the following factors: **NA**

1. Monthly precipitation
2. Monthly evapotranspiration data
3. Soil percolation rates (from subsurface permeability data)
4. Monthly wastewater loading
5. Monthly storage requirement
6. Monthly storage input/drawdown

9. Does the volume of wastewater generated as determined by the water balance in 8.b. exceed the hydraulic loading rate (inches/acre/year) of the soils? Yes \_\_\_\_\_ N \_\_\_\_\_

If Yes, explain how excess loading will be disposed of:

NA

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10. Is the land application site owned by the applicant? Yes   x   No \_\_\_\_\_

If No, answer question 11 and have the land owner complete the authorization form, Page C-II-5.

11. Complete page C-II.5 by providing the name(s), address(es), site locations and signatures of non-applicant land owner on whose property industrial waste will be applied (A separate approval will be required for each additional owner.): **NA**

AUTHORIZATION TO LAND APPLY WASTE  
(Land Owner must sign and date this approval)

As land owner, I authorize Omega Protein to land apply wastewater/sludge to my property in accordance with their VPA Form C application. This authorization will remain in effect until such time as I notify the Department of Environmental Quality in writing that this authorization has been withdrawn.

Name: Robert LaBruzzo

Address: Highway 659  
Reedville, VA 22539

Telephone: 804-453-4211

Site Location(s) Omega Protein, Inc., Reedville, VA

Date: April 3, 2008

Signature: Robert V La Bruzzo

# SOIL SAMPLE TEST PARAMETERS FOR LAND APPLICATION SITES<sup>1</sup>

Industrial Operations	Sludge Freq. Below Ag. Rates <sup>2</sup>	Sludge Freq. at Ag. Rate <sup>3</sup>	Sludge Infrequent	Wastewater
Soil Organic Matter (%)		*		*
Soil pH (Std. Units)	*	*	*	*
Cation Exchange Capacity (meq/100g)	*	*	*	*
Total Nitrogen (ppm)		*		*
Organic Nitrogen (ppm)		*		*
Ammonia Nitrogen (ppm)		*		*
Nitrate Nitrogen (ppm)		*		*
Available Phosphorus (ppm)	*	*	*	*
Exchangeable Potassium (mg/100g)	*	*	*	
Exchangeable Sodium (mg/100g)		*		*
Exchangeable Calcium (mg/100g)		*		*
Exchangeable Magnesium (mg/100g)		*		*
Copper (ppm)		*		*
Nickel (ppm)		*		*
Zinc (ppm)		*		*
Cadmium (ppm)		*		*
Lead (ppm)		*		*
Chromium (ppm)		*		*
Manganese (ppm)		*		*
Particle Size Analysis or USDA Textural Estimate (%)		*		*
Hydraulic Conductivity (in/hr)				*

NOTE: <sup>1</sup> Unless otherwise stated, analysis shall be reported on a dry weight basis.

<sup>2</sup> Less than 70% of agronomic nitrogen rates (annual basis).

<sup>3</sup> Test requirements will be adjusted based on previous test results

\* Test for these parameters.

Discussion of Data, Page C-I.3, Item 4 b.  
Omega Protein

The attached spreadsheet presents a summary of all analyses performed on the sludge. Actual data sheets are also attached.

In June 2005, analyses were performed on the black, un-desiccated sludge by Patton Harris Rust & Associates (PHRA) shortly after the sludge was placed in the holding basin. PHRA has performed VPDES analyses for many years.

Over the next twelve months, the sun dried the upper 9 inches of sludge to a brown soil-like material that was much more manageable with regard to land application, meaning that normal construction equipment could be used. Grass and weeds grew on the surface, obviously uptaking nutrients. Therefore, it made sense to sun-dry all the sludge before land application and to re-analyze for nutrients.

Samples were taken from each corner of the holding basin and a composite was made by taking equal size samples from each of the corners. The composite sample was split and sent to PHRA and Virginia Cooperative Extension for analysis. The corner samples were sent to PHRA for additional nutrient analysis.

When comparing the data on the composite sample, there was some agreement and some disagreement between the two labs. Since the Va. Co-op lab performs these analyses more regular than PHRA, preference was granted to the Co-op results. For consistency, the nutrient numbers from Clemson that DCR used for the NMP were used. The data we selected is shown on the spreadsheet as "boxed".

Suspecting that heat from the sun might have effected fecal coliform (from wildlife), we re-analyzed the dried soil-like sludge for fecal coliform and received a lower value of <200 MPN/gram.

Sludge  
3/26/2008

35.19 must be undried sludge

ANIMAL WASTE ANALYSIS REPORT  
Agricultural Service Laboratory  
Clemson University

LAB No. 101313

OMEGA, PROTEIN  
P O BOX 175  
REEDVILLE VA

22539

ACCOUNT 1001703  
DATE 10-27-2006  
ROBERT.WARING@DCR.VIRGINIA.GOV

CONSULTANT ROBERT WARING VADCR

SAMPLE NO. FALL2006

MANURE: OTHER INTEGRATOR: STORAGE: UNCOVERED

-----RESULTS REPORTED ON AN AS-SAMPLED BASIS-----

ANALYST				lbs/ton
pj	Ammonium Nitrogen	0.09	% 900	1.80
pj	Total Nitrogen	0.41	% 4,100	8.15
dw/km	Phosphorus as P2O5	0.10	% 1000 ppm	2.08
dw/km	Potassium as K2O	0.03	% 300 ppm	0.62
dw/km	Calcium	0.14	% 1,400 ppm	2.85
dw/km	Magnesium	0.03	% 300	0.52
	Sulfur	0.05	% 500	0.91
	Zinc	11.02	ppm	0.02
	Copper	50.55	ppm	0.10
	Manganese	7.13	ppm	0.01
	Sodium	51.20	ppm	0.10
	Aluminum	3629.40	ppm	7.26
jp	Moisture	35.19	%	

-----  
All of the potash in the animal waste should be plant available in the first year of application. Although not all of the phosphorous is available in the first year, its availability should be comparable to that in commercial fertilizers.

The rate of animal waste to apply for crop production is dependent on the nutrient content of the waste, method of application and incorporation, soil test, crop to be grown, and previous manure applications. In most cases, the plant available nitrogen content of the waste is used to determine the rate of application.

APPROVED BY \_\_\_\_\_

Analysis performed in accordance with Clemson Laboratory Manure Analysis procedures, February, 2004.

Manure analysis in Virginia is funded by the Dept. of Conservation and, Recreation, Div. of Soil and Water Conservation.

The Agricultural Service Laboratory is a public service of Clemson University, an equal opportunity educational institution: <http://www.clemson.edu/agsrvlb>

# Virginia Cooperative Extension

## Soil Test Report

Northumberland County Office  
P.O. Box 400  
Heathsville, VA 22473-0400  
804-580-5694

Virginia Tech Soil Testing Laboratory  
145 Smyth Hall (0465)  
Blacksburg, VA 24061  
www.soiltest.vt.edu

SEE ENCLOSED NOTES:

1 3

O  
W  
N  
E  
R

JETT LYELL  
OMEGA PROTEIN  
P O BOX 175  
REEDVILLE, VA 22539

C F  
O O  
P R  
Y

BILL BLACK  
401 STUDEWOOD STE 208  
HOUSTON, 77007

*This is Lagoon sludge*

## SAMPLE HISTORY

Sample ID	Field ID	LAST CROP		LAST LIME APPLICATION		SOIL INFORMATION				
		Name	Yield	Months Prev.	Tons/Acre	SMU-1 %	SMU-2 %	SMU-3 %	Yield Estimate	Productivity Group
LAGON	LAGOON			---	0	MAA 100				II

## LAB TEST RESULTS (see Note 1)

Analysis	P (lb/A)	K (lb/A)	Ca (lb/A)	Mg (lb/A)	Zn (ppm)	Mn (ppm)	Cu (ppm)	Fe (ppm)	B (ppm)	Salts (ppm)
Result	95	40	240	68	2.3	2.0	31.1	243.1	0.1	499
Rating	H+	L	L-	L+	SUFF	SUFF	SUFF	SUFF	SUFF	M

Analysis	Soil pH	Buffer pH	Est.-CEC (meq/100g)	Acidity (%)	Base Sat. (%)	Ca Sat. (%)	Mg Sat. (%)	K Sat. (%)	Organic Matter (%)
Result	4.0	5.74	4.8	80.8	19.2	12.4	5.8	1.1	4.8

## FERTILIZER AND LIMESTONE RECOMMENDATIONS

Crop: Orchardgrass/Fescue-Clover Pasture (40)

Lime, TONS/AC		Fertilizer, lb/A		
Amount	Type	N	P2O5	K2O
3.5	AG	50	0	110

635. No further crop response is expected when applying more than 2 to 3 T/A of lime in one application. Therefore, apply half of the total lime now, and the remainder in 6 to 12 months.

825. If stand contains less than 25 per cent clover, apply 40-60 lbs N/A.

131. If additional production is needed later on, apply 40 to 60 lbs/A of N during the grazing season. If you are planning to overseed a legume into the stand, omit the N recommendation.

122. P2O5 and K2O recommendations are for annual application. However, rates can be doubled and applied every other year if desired.

677. Soluble Salts are not high enough to cause salt injury.